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Three Essays on Family Leave and Childcare

Samantha Minieri, PhD

University of Connecticut, 2019

This dissertation investigates parental decision making during early childhood. I aim to study how policy can influence parental time investments in children and how cultural norms can influence parental leave take up and early care and education program participation. The first chapter focuses on how the California Paid Family Leave policy influenced the amount of time and type of activities parents perform with their children. The second chapter examines how norms regarding paid parental leave impact parental leave take up in the US. Similarly, the third chapter explores how norms regarding childcare influence childcare attendance.

Three Essays on Family Leave and Childcare

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B.A., Assumption College, **2014**

M.A., University of Connecticut, **2016**

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

at the

University of Connecticut

2019

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2019

APPROVAL PAGE

Doctor of Philosophy Dissertation

Three Essays on Family Leave and Childcare

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2019

Acknowledgements

I would like to express my sincerest gratitude to my advisor, Delia Furtado, for guiding me through this process. She has constantly provided feedback and challenged me to better my understanding of my work. I am very thankful for her never ending dedication to her students and her drive to see us succeed.

I would also like to thank Steve Ross and Jorge Agüero for their guidance and feedback. They provided a fresh pair of eyes and perspective and my work greatly benefitted from their suggestions.

Lastly, I would like to thank my parents, Liz and Joe, and my husband, Chris, for their support during this process. They were always there to celebrate my accomplishments and push me through more stressful periods, and for that I am very grateful.

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Introduction

Economic research on early childhood development has become an active research area because of its influence on human capital formation. Much of the literature has focused on shocks, such as inadequate nutrition or disease, and interventions, including child care subsidies and health care coverage, in utero or in early childhood and how these impact long run outcomes. It is also important to understand the factors that contribute to parental decision making during this critical period in development, since these decisions can have profound impacts on the child's outcomes later in life. This dissertation focuses on parental decision making during early childhood, focusing on how policy can influence parental investments in their children and on how cultural norms can influence the decision to take parental leave or use formal childcare services in the US.

The first chapter explores how the nation's first paid family leave program affects parental time investments. I use a difference-in-differences strategy along with American Heritage Time Use Study data to determine if the policy impacts the amount of time parents spend caring for their children. Results for mothers suggest the policy increased the amount of time spent in childcare by 30 percent, which is approximately 6 hours per week. They spend roughly two-thirds of this extra time devoted to basic child care activities, such as breastfeeding, bathing, and changing diapers, while one-third of this time is spent on educational or recreational care, such as playing or reading to children. In response to the policy, fathers decrease time spent on in basic childcare but increase time in educational or recreational care. This is consistent with a specialization story for types of care provided by each parent.

The second chapter, co-authored with Delia Furtado, explores the role of norms in determining parental leave behavior by examining the impacts of home country leave policies on immigrants in the United States. In our empirical estimations, we proxy for norms using the duration of paid parental leave available in the home country in the year prior to migrating to the US. Since while living in the U.S., immigrants are not directly affected by their home country, any observed relationship between home country norms and leave-taking behaviors must operate through norms. Additionally, when we add home country fixed effects to our model, we are able to determine if changes in policy can change norms by

exploiting variation in the timing of changes in home country leave policies along with the timing of when immigrants left their home country. Baseline results suggest immigrants from countries offering more generous leave policies take more leave in the US. With the inclusion of home country fixed effects, we still see home country policies affect leave taking behavior, indicating that indeed changes in policies can change norms.

In the third chapter, I investigate the role of home country parental leave and childcare norms on immigrants' decisions to send their children to childcare in the United States. I use a similar empirical strategy as my second chapter, where I measure norms using the amount of public expenditures on services for families in the home country. Using the education supplement from the October Current Population Survey, I estimate the effect of norms on participating in formal early care and education (ECE) programs for children of immigrants in the US. My results show that immigrants from countries with more public spending on family services are more likely to send their children to formal care programs in the US. Moreover, when I include country of origin fixed effects in my model, thus comparing immigrants from the same home country, I find that those who are exposed to higher amounts of home country spending are more likely to participate in ECE programs in the US, once again showing that changes in policies or institutions can change norms.

Taken together, I believe these three chapters provide valuable insights into the relationship between policy, norms, and parental decisions regarding childcare. My research shows that changes in policy can change cultural norms, and these changes may cause policy to have larger impacts in the long run compared to the short run. This is relevant information for policy makers, especially when they are interested in learning about the impacts or effectiveness of a newly implemented policy.

Chapter 1: California Paid Family Leave and Parental Time Use

1.1 Introduction

There is a large and growing literature connecting early childhood investments and later life outcomes such as educational attainment, workplace productivity, and participation in crime. Parental time investments are an important component in children's cognitive skill development as they lay the foundation for further development once children begin formal education (Cunha and Heckman, 2007). An open question, however, is how public policy can be used to induce parents to make important investments in their young children, especially when parents are income and time constrained. This chapter examines how paid parental leave policies might affect the amount of time parents spend with children as well as how they spend this time, both while they are on leave and shortly after returning to work.

Every OECD nation, except the US, offers a minimum of 14 weeks of paid leave, with many of the countries offering much longer durations of paid leave (Ruhm, 2011). While the US does not have a federal leave policy, many states are beginning to enact their own paid leave policies to help parents bond with their newborn (or newly adopted) children. California implemented the nation's first paid leave policy in July of 2004. The policy allows new parents, both mothers and fathers, to take up to six weeks of leave with a wage replacement rate of 55% up to a ceiling. Taking a differences-in-differences approach, I explore whether mothers and fathers with a child born in California after the implementation of the policy have different time use patterns compared to parents of children born in other states or in California before the policy was implemented.

The CA-PFL might impact time use patterns of parents for several different reasons. First, given the evidence that the policy increased leave take-up among mothers and fathers (Rossin-Slater et al., 2013; Bartel et al., 2015; Baum and Ruhm, 2016), then while parents are on leave, they will have more time available to spend with their children. Second, the policy may have changed time use patterns even after parents return to work. Parents who have grown accustomed to providing child care while on leave may be more likely to return to work on a part time basis freeing up more time for child care activities. The extended leave may also affect the preferences for child care of parents returning to work full time. Even among

parents who would have taken a long leave regardless of the policy, the additional income during the leave may have changed time use patterns of parents both during and after the leave. This is the first paper to examine how paid leave policy impacted the amount of time spent directly caring for children as opposed to performing household chores or leisure.

My analysis contributes to a growing literature on the impacts of the CA-PFL (Rossin-Slater et al., 2013; Bartel et al., 2015; Baum and Ruhm, 2016; Bana et al., 2018; Lichtman-Sadot and Bell, 2017; Pihl and Basso, 2018). Several studies in particular show that the policy improved child health outcomes. By examining how time use patterns of parents changed as a result of the policy, I provide evidence of a potential mechanism through which the policy improved outcomes. In addition, I am the first to consider how the policy impacts the following: (1) time use patterns between mothers and fathers, (2) time use patterns between mothers currently on paid leave and mothers who have returned to work after the leave period is over, and (3) maternal time use patterns between when their children are first born and when their children are older.

The study uses time use data available from the American Heritage Time Use Study (AHTUS). The AHTUS combines multiple time use surveys conducted in the US and harmonizes the variables. For this particular question, I use time use data from the National Survey of Parents from 1999-2000 and the American Time Use Survey from 2003 to 2012. To focus on the individuals most likely to be eligible for the policy, I restrict the sample to employed individuals and include those that are either working or are on leave from work.

Using a difference-in-differences empirical strategy, similar to other studies examining the impacts of California paid leave (Baum and Ruhm, 2016; Lichtman-Sadot and Bell, 2017), I show that mothers significantly increase the amount of time spent caring for children as a result of the policy. The amount of time spent in child care activities increased by 34 percent, or by an additional 6.3 hours per week. Over half of this additional time is spent in basic child care activities, while the remaining increase is due to more time spent in educational or recreational activities. Mothers also continue to increase their time with children once they return to work, with all of the additional 4 hours per week spent in educational or

recreational care. For fathers, there is no change in time spent in all child care activities, but this is mainly due to the fact that the policy causes them to reduce their time in basic child care and increase their time in educational or recreational care by roughly the same amount.

Results indicate that mothers who were exposed to CA-PFL not only increase their time in child care when children are first born, but they continue to spend more time with their children as they begin to age. Mothers of 2 and 3 year old children who were born after the policy's implementation increase their time in basic care by 17 and 10 percent respectively. Lastly, the policy affects parental time use for alternate outcomes, including market work, domestic work, and leisure. Results show that both mothers and fathers reduced their time in market work and increased their time in domestic work after CA-PFL was implemented. Fathers reduced the amount of time spent in leisure activities while mothers increased leisure time. However, when further exploring these results, it appears the additional time spent in leisure for mothers is mainly driven by personal care activities, such as sleeping or grooming.

The paper is organized as follows. Section two provides a review of the relevant literature, including background information on parental leave in the US and related research, as well as the determinants of time use and the effect of parental time use on child outcomes. In section three, I introduce the data and section four discusses the empirical strategy used in the paper. Section five presents the results for mothers, including results for mothers on leave versus mothers who return to work, tests for heterogeneity, and possible long run effects of the policy on time use. Results for fathers are presented in section six, followed by alternate time use outcomes in section seven. Section eight concludes.

1.2 Literature Review

1.2.1 Background on Parental Leave

The United States is the only developed nation that does not offer paid parental leave. The only federal policy that grants leave to new parents is the Family Medical Leave Act (FMLA).¹ In order to

¹ Passed by Congress in 1993, the FMLA grants 12 weeks of unpaid, job protected leave. In order to be eligible for this leave, employees must have worked 1,250 hours in the previous 12 months and must work at a firm with 50 employees or more. Due to this eligibility constraint, less than 60% of workers are able to take advantage of leave

determine how the FMLA affected take up of leave in the US, most studies use a difference-in-differences design and compare states that had existing leave policies to states without prior leave policies. Results show the policy increase leave take up for both mothers and fathers (Waldfogel, 1999; Han et al., 2009). Additionally, mothers who are eligible for leave under the FMLA are more likely to return to their pre-birth employer (Waldfogel et al., 1999; Baum, 2003). Research on female wages and employment do not find any significant effects (Waldfogel, 1999; Han et al., 2009). The policy also is seen to have positive effects on infant health, including a reduction in premature births and infant mortality and an increase in birth weight (Rossin, 2011).

While it is important to understand how parents respond to leave policies, parents may have different responses to a paid leave policy compared to an unpaid leave policy. To gain insight into the effects of paid leave policies, researchers have examined state level policies offering partial wage replacement. After the passages of the Pregnancy Discrimination Act in 1978, states that offer Temporary Disability Insurance (TDI) were required to treat pregnancy as a short term disability. Five states currently offer partial wage replacement through TDI: California, Hawaii, New Jersey, New York, and Rhode Island. New mothers in these states receive partial payment for an average of six weeks, ranging from 50% to 55% of their salary. TDI benefits only apply to new mothers and not to new fathers. Stearns (2015) examines the impact of TDI on birth outcomes. She finds paid maternity leave available through TDI reduced the share of low birth weight births and decreases the likelihood of early term birth. I contribute to the literature of how paid leave policies affect children by examining how the policy changes time use patterns of parents with young children, but I focus on California's paid family leave policy.

California was the first state to offer paid family leave in the US. Beginning in July 2004, new parents are able to take six weeks of leave with a wage replacement rate of 55% up to a ceiling. Because mothers were previously eligible to paid leave through TDI, in practice, the CA-PFL increased the duration of paid leave from six weeks to twelve weeks for mothers. This is also the first policy to grant paid leave

through the FMLA. In contrast, only 12 percent of workers had access to paid family leave through their employers as of 2015 (Rossin-Slater, 2017).

to fathers. Neither TDI nor CA-PFL offers job protection, but eligible employees can combine either of these paid leaves with FMLA to benefit from job protection as well.

CA-PFL provides almost universal coverage to all private sector workers in the state; self-employed and most public sector employees are not eligible to paid leave under this policy. There are no working hours or firm size requirements. To be eligible for paid leave, workers need to have earned \$300 in a state disability insurance covered job in any quarter in the 5 to 17 months prior to filing a PFL claim. Paid family leave and TDI are both financed entirely by payroll taxes levied on employees.

Much of the early research on CA-PFL has focused on take up and leave duration. In order to examine the policy's effect on take up rates, the majority of the studies use a difference-in-differences design, similar to the one used in this chapter. In the first study to examine the effects of the policy, Rossin-Slater et al. (2013) find that the policy increases the use of maternity leave by an average of 3 to 6 weeks. For fathers, Bartel et al. (2015) find that new fathers are 0.9 percentage points or 46 percent more likely to take leave. Interestingly, half of this result is driven by fathers who take leave while the mother is also on leave, while the other half is driven by fathers who take leave on their own while the mothers are at work. Utilizing alternate data sources, Baum and Ruhm (2016) find similar patterns – mothers increase leave duration by 3 weeks while fathers increase leave duration by 1 week. They also find that leave increases right at birth for new fathers and after TDI benefits have been exhausted for mothers.

Few studies examine how the policy impacts time use, but they mainly focus on hours of work. Baum and Ruhm (2016) find mothers eligible for paid leave become more likely to return to work by a year after birth. They also see an increase in maternal work hours and weeks worked during the second year of the child's life. Bana et al. (2018) find a similar pattern when focusing on the weekly benefit amount available to mothers. When examining the outcomes of mothers with pre-leave earnings that fall just below or just above the threshold where the maximum benefit applies, they find an increase in the weekly benefit amount increases the share of quarters worked in the first one to two years after the initiation of leave. While we know how CA-PFL affects the amount of time mothers spend working, we do not know how the

policy affects how mothers spend their time when they are not working, which is one of the contributions of this study.

My work is closely related to the impacts of CA-PFL on child health. Huang and Yang (2015) find paid leave increases breastfeeding rates by 10 to 20 percentage points in the first three, six, and nine months after birth. More recently, Pihl and Basso (2018) find the policy reduced infant hospitalizations by 3 to 6 percent. Potential mechanisms for these results include higher quality care provided while parents are on leave, increased breastfeeding, and more time for parents to seek preventative care. Furthermore, Lichtman-Sadot and Bell (2017) find the policy reduced the likelihood of obesity, ADHD, hearing issues, and frequent ear infections in children entering elementary school. They believe potential mechanisms for their results may be reduced parental stress, increased breastfeeding, and greater parental care. While the authors were not able to test their predictions, my study sheds some light on the potential mechanism through which paid leave generates improved outcomes of children. Broadly, I will examine how the policy affected the time parents spend with children, an important input into child development more generally. More specifically, I will be able to look at the amount of time parents spend providing medical care and breastfeeding – which more directly speak to the outcomes in the child health literature.

1.2.2 Time Use and Parental Investment Literature

There is a small but growing literature examining parental investments using time use data. Much of the earlier work focuses on documenting patterns in time investments by parental demographic characteristics. By examining time use of parents in Canada, Germany, Italy, and Norway, Sayer et al. (2004) find parents with higher educational attainment spend more time with their children than those with fewer years of education. Guryan et al. (2008) find this to be true for mothers and fathers in the US. They also find a similar pattern with parental income – parents with higher income spend more time with children than lower income parents. In addition to the education and income gradient, Kalil et al. (2012) find evidence of a development gradient. Not only do more highly educated mothers spend more time with their children, but they also alter their time investments to suit the developmental needs of the child.

While this is the first paper to examine the effect of paid leave on parental time use, others have examined how employment affects time use. Employed parents have less time to spend in certain activities compared to their nonworking counterparts, but it is unclear how this reduction in available time affects children. It may be the case that parents trade quantity for quality and spend what little time they have in activities that are more beneficial for child outcomes. Additionally, while employment reduced the amount of time spent in favorable activities for children, it may also reduce the amount of time spent in less favorable activities. Hsin and Felfe (2014) find maternal employment reduces the amount of time spent with children. Upon closer examination, they find the reduction is driven by less time spent in unstructured activities, such as watching television, rather than educational or structured activities, which are shown to have positive effects on child cognitive development.

While most of the time use literature is rather descriptive, Amuedo-Dorantes and Sevilla-Sanz (2013) examine how changes in low-skilled immigration affect the amount of time college-educated mothers spend with their children. They find that as a result of increases of low-skilled immigration in the US, mothers reduce the amount of time spent in basic care activities but do not reduce their time in educational or recreational activities. This suggests that care provided by low-skilled immigrants may be a good substitute for basic maternal care but not for activities requiring higher levels of human capital. My study is similar in that it examines how parental time use changes when the time constraint is weakened, but instead of examining how child care availability or other service workers affect time use, I consider the effect of a paid leave policy. I expect my results for time use patterns of highly educated mothers to be similar to their results. On the other hand, I expect to find changes in time use patterns for mothers with lower educational attainment, since their time constraint is also weakened as a result of the policy.

Many researchers have shown parental time investments are important for child skill development. Cunha and Heckman (2007, 2008) and Cunha et al (2010) find evidence of sensitive periods for child development, where the productivity of parental investments in child cognitive skills are higher earlier in life, while investments in non-cognitive skills are more productive in later stages. Using a different estimation strategy, Del Bono et al. (2016) find maternal time affects child cognitive and non-cognitive

development, and that early time investments are more productive than later time investments. Similarly, Del Boco et al. (2014) find time investments made by both mothers and fathers are equally important for cognitive development but diminish with child age. Lastly, Fiorini and Keane (2014) find parental time spent in educational activities with their children is the most productive input for cognitive skill. Given that parental time investments play a large role in child development early in life, it is important to understand how a policy that allows parents to spend more time with their children by giving them paid leave impacts the amount of time and types of activities they perform during the period of leave.

1.3 Data

Data for this study comes from the American Heritage Time Use Study (AHTUS) from 1998 to 2012. The AHTUS is a harmonized data set containing the responses of multiple time use surveys conducted in the US. This chapter uses two time use surveys in its analysis - the National Survey of Parents from 1999-2000 and the American Time Use Survey from 2003-2012. Appendix Table A1.1 describes each of these surveys in detail.

For each of the surveys, respondents were asked to record their activity within a 24 hour time period. Respondents must report the primary activity they are performing but they can also report secondary activities when they are performing more than one activity at a time. For example, if parents are grocery shopping with their children, they would report shopping as the primary activity and child care as a secondary activity. Respondents may also report if anyone else is present while they perform an activity.

Following Amuedo-Dorantes & Sevilla-Sanz (2013), I define parental time investments as the amount of time respondents report performing any child care as the primary activity. While incorporating secondary activities or the “with whom” responses provide a broader understanding of the time parents spend in child care, there are potential issues that arise when using them. First, they may not always capture quality time investments made by parents. As mentioned previously, secondary activities take into account when a parent has a child in their care while performing another activity, but it is possible that the parent is more or less supervising and not necessarily engaging with the child. For example, a parent must be home

while the child is napping or sleeping (Guryan et al., 2008). Therefore, using child care as the primary activity is attempting to capture more quality interactions between parents and children, which could be more beneficial to children. Additionally, information on secondary activities is only available beginning in the 2000s for my sample, which would not provide enough data in the pre-policy period to understand how CA-PFL affects parental time investments using this broader measure. While the “with whom” data is available in the pre-policy years, parents are unable to report if their child under the age of 5 is present and thus cannot be used in my analysis.

In addition to using the time spent in childcare as my outcome of interest, I distinguish between two types of care following Aguiar and Hurst (2007) and Amuedo-Dorantes & Sevilla-Sanz (2013) – (1) basic childcare and (2) educational or recreational care. Examples of basic care include breastfeeding, rocking a child to sleep, changing diapers, providing medical care, or grooming. Educational care includes reading to children, helping them with homework, or attending school meetings. Recreational child care includes activities such as playing games, playing outdoors, going to the zoo, taking walks, or going to a sporting event or dance recital.²

Ideally, the best way to examine the effects of CA-PFL on parental time use would be to select a sample of parents who qualify to take leave, meaning they have earned \$300 in a state disability insurance covered job in any quarter in the previous 5 to 17 months before filing a claim. After all, the policy is unlikely to have an impact on women who have never working in the labor force. Unfortunately, my data does not provide information on previous work history. Therefore, I follow Bartel et al. (2015) and limit my sample to only those who report being employed. Respondents in the survey are listed as employed if they are working part time or full time. If individuals report they are not working due to vacation, illness,

² Time in basic childcare is calculated by aggregating the following time use variables – care of infants (includes children under the age of 5), care of older children (includes children ages 5-17), other childcare, and medical care. Educational or recreational care aggregates the time spent reading or talking, playing, and supervising child or help with homework. Time spent in childcare includes all activities from both basic care and educational/recreational care. It is possible that parents with infants may report spending time in educational activities if they also have older children in the household. The variable captures the total amount of time parents spend in these activities on a given day, but it cannot always be determined who they spend the time with.

or parental leave, they are still considered employed but are absent from work. While my sample selection ensures that most of the parents in the survey are eligible for paid leave, I am unfortunately excluding individuals who were eligible for the policy, and even took leave, but later left the labor force. In section 5.2, I examine the sensitivity of my results to adding parents who are out of the labor force.

The primary group of interest in this study is parents between the ages of 16 and 54 who recently gave birth and are either currently at work or on leave. Summary statistics are presented in Table 1.1 for mothers and fathers.³ Comparing demographic characteristics, mothers are less likely to be married and more likely to be white than fathers in the sample. For the time use variables, mothers spend more time than fathers in every type of child care activity. On average, mothers spend 18.4 hours per week in care as the primary activity, whereas fathers spend 10 hours per week. Mothers spend over double the amount of time in basic care than fathers – 12.3 compared to 5.3 hours per week. For both parents, they spend a large portion of basic child care by caring for infants while the bulk of the time spent in educational and recreational activities is driven by the amount of time they spend playing with their children.

Tables 1.2A and 1.2B separate the means of the demographic variables by parents in California and the control states in the period before and after July 2004, when the policy was implemented.⁴ For each group, I present the differences between the pre and post period, and in the last column, I calculate the difference between the treatment and control state differences. Again, there appears to be a large difference in educational attainment for both mothers and fathers. Additionally, the race/ethnicity groups differ largely for fathers, mainly regarding the change in white and Hispanic fathers. To address this issue, I turn to regression analysis.

1.4 Empirical Strategy

This study uses a difference-in-differences design, similar to Baum and Ruhm (2016) and Lichtman-Sadot and Bell (2017) who examine various effects of California Paid Family Leave, to test if

³ Appendix Table A1.2 presents summary statistics separately for the two time use surveys used in the analysis.

⁴ I use parents in all other states except California as my control group.

mothers eligible for paid parental leave spend more time with their children. I will estimate the following equation:

$$Y_{ist} = \beta_0 + \beta_1 \text{California}_s * \text{Post}_t + \beta_2 \mathbf{X}_{ist} + \phi_s + \gamma_t + \varepsilon_{ist}$$

The dependent variable is the amount of time person i living in state s at time t spends doing the following activities (in hours per week): all childcare, basic childcare, and educational/recreational care. California is an indicator variable equal to one if the respondent lives in this state and Post is an indicator variable equal to one if the parent gave birth to a child after CA-PFL was implemented. The coefficient of interest is β_1 , which captures the effect of the policy. I expect this coefficient to be positive if mothers spend more time with their children as a result of the policy.

The demographic controls included in the vector \mathbf{X} are as follows: marital status, race/ethnicity, educational attainment, age, number of children under age 18, income quartile, and an indicator variable for if the respondent was surveyed on a weekday. State (ϕ_s) and year (γ_t) fixed effects are also included in the model.

1.5 Results for Mothers

1.5.1 Baseline Results

Table 1.3 presents the results for the baseline specification, both with and without controls. Results show mothers eligible for CA-PFL spend an additional 6.3 hours per week with their children, or a 34 percent increase. When examining time spent in the two different types of child care, results show the increase in child care seems to be driven by more time spent in basic care. Mothers spend an additional 4.2 hours per week in basic child care activities, and increase their time in educational or recreational activities by 2.1 hours per week. The coefficient estimates do not change drastically with the inclusion of the demographic controls in the model. This helps alleviate some concerns that the differences in parental time use are being driven by differences between California and comparison states.⁵

⁵ These results are presented using the rest of the US as the control states. Appendix Table A1.3 examines the robustness of the results to alternate control groups. Since there are other states that offer paid leave for mothers through TDI during this time period, there may be a concern that these states are driving the results. Panel A drops

In Table 1.4, I examine each of the individual time use variables included in the broader child care variables to determine if the policy differentially affects the specific activities parents perform while providing care. Basic care is comprised of time spent providing care, such as feeding, bathing, and medical care, while educational and recreational care includes playing, reading and talking with children, and supervision and helping with homework. For mothers, the large increase in time spent in basic care is driven by more time caring for children who are 4 years old and younger. There is also a slight increase in the amount of time spent caring for children age 5 and younger, approximately 0.7 hours per week, suggesting the policy has spillover effects to older children in regards to parental time. For educational and recreational care, mothers spend more time playing and reading/talking with children, 2.2 and 0.4 hours more per week respectively. The policy also leads to a reduction in the amount of time spent supervising or helping children with homework.

A key assumption when using this empirical strategy is that the time use patterns of parents in the treatment and control groups would have continued on the same trend in the absence of CA-PFL. Although I cannot directly test this assumption, I can test whether the two groups follow the same trends before the policy change. Specifically, I add a linear time trend variable to the regression model and limit the analysis to the pre-policy period.⁶ Additionally, I interact the time trend with the indicator variable for California and remove the interaction between California and the post period. The model includes the same controls and fixed effects as the baseline model above. If the treatment and control states have similar pre-trends prior to the policy change, the estimate of the coefficient on the interaction variable should be small and statistically insignificant. Table 1.5 presents the results of these regressions. The coefficient of the

these states from the control group (Hawaii, New York, New Jersey, and Rhode Island) and finds no difference, implying the results are not being driven by these states. On the other hand, states that currently offer paid leave to mothers through TDI may be a more ideal control group because it allows me to isolate the effects of CA-PFL and thus Panel B limits the control group to these four states. Although the sample size is much smaller, a similar pattern emerges. There may also be concerns that a large portion of the data in the post period falls within the Great Recession, and residents of California may have reacted differently to the Great Recession than residents of other states even if the paid leave policy had not been enacted. To address this issue, I shorten the amount of data used in the post period and estimate the baseline model using data from 1999 to 2007. Results are presented in Appendix Table A1.4 and show very similar patterns for mothers, although the magnitudes of the estimates are slightly smaller.

⁶ The pre-policy period in my data is 1999-2000 and January 2003 to June 2004.

interaction variables is indeed significant for both mothers and fathers for each of the time use variables, indicating there is no significant difference in pre-trends for these groups.

Identification could potentially be threatened if there were changes in the time varying characteristics of California parents, which are potential determinants of time usage. For example, this could be driven by changes in the composition of California's population relative to population trends in other states. Many other studies examining CA-PFL note that it is highly unlikely that the policy affected parental migration patterns into California, given the monetary benefit is capped at less than \$5,000 for the six week period (Lichtman-Sadot and Bell, 2017). Nevertheless, there may be another reason for compositional changes that affect the time use and therefore, I perform balance tests on the observable characteristics on my sample.

In order to determine if parental characteristics changes substantially before and after the implementation of CA-PFL relative to other states, I estimate a variation of my baseline model with the demographic characteristics as the dependent variable and drop the control variables from the model. Results are presented in Appendix Table 1.5. Each cell represents a separate regression with the dependent variable listed in the left hand column. There do appear to be demographic changes after the policy, especially regarding race/ethnic groups and educational attainment, however I do control for these characteristics in all my specifications.

1.5.2 Sensitivity of Sample Selection

Another potential issue with these results is that by selecting the sample on current employment status, I am failing to capture effects for parents who took paid leave in California and subsequently left the labor force. To investigate my choice of sample, I run my baseline model for all parents and then separately for those who report being currently employed and those who are out of the labor force (which the survey describes as being non-employed).⁷ Results for all mothers, presented in Table 1.6, show the policy

⁷ Employed parents report currently having a job but they may either be working or on paid leave at the time they are surveyed. Non-employed parents are those who report they are not employed, which may be a result of retirement,

increases the amount of time spent in all three types of time investments, however the magnitudes of the estimates are much smaller. For those mothers who are not participating in the labor force, results are mainly negative, with the reduction in basic care only marginally significant. A possible explanation for these results may be that CA-PFL induced different women to stay home. In California, mothers who would have otherwise worked stay home, whereas in other states, only mothers who were completely devoted to their children stay home since there is no paid leave. These mothers in California may not be the type to spend a lot of time with their children compared to mothers in other states, and thus the regression results may be reflecting this difference.

1.5.3 On Leave versus At Work

Returning to the baseline sample of employed mothers, results thus far have shown that CA-PFL increases the amount of time mothers spend with their children. For mothers who are currently on leave, they have more available time, and thus we would expect time in child care to increase. What about mothers who have returned to work? Do they continue to spend more time with their children as a result of this policy? I investigate this question by examining child care patterns of employed mothers who report working zero hours and those who report working some positive amount of time at the time they were surveyed.⁸

The estimates presented in the left hand side of Table 1.7 examine the effects of CA-PFL for mothers with positive work hours. Results show these women increase their time in child care by roughly 4.3 hours per week, or 27 percent, as a result of the policy. These results are largely driven by increases in time spent in educational and recreational care. Additionally, when I separate the results based on which day of the week they were surveyed, it appears these women increase their time in these activities on both the weekends and weekdays.

being a student or a home-maker, and does not indicate unemployment, but rather they are not participating in the labor force.

⁸ I split the sample conditional on the amount of time spent in market work. Appendix Table A1.7 describes how I define market work using time use data.

There are several reasons why mothers who have returned to work may continue to increase their time in child care. It may be the case that women who return to work only do so part time, which increases the time available to spend with their children. Their decision to return to work part time may be influenced by a stronger attachment to their newborn, which makes the mother want to stay home more, or it could be that the wage replacement during the leave period enables them to return at reduced hours. Another possible explanation is that the policy caused a shift in parental norms or preferences, which caused new working mothers to spend more time with their children, regardless of whether they return to work full time or part time.

The right hand side of Table 1.7 examines time use of women who report working zero hours. Results show employed mothers in California spend an additional 6.4 hours per week in child care as a result of the policy, and even larger effects for mothers surveyed on weekdays compared to weekends. This is mainly driven by increases in time spent in basic care activities. There is no change for time spent in educational or recreational activities. While these results are similar to my predictions given the nature of the policy, we need to be cautious when interpreting the results. Mothers may report working zero hours for many reasons, including illness, vacation, or family leave. While many of the new mothers in California may be on paid leave, it might not be the case for new mothers in other states, where there is no state level paid leave policy in place. As a result, I may be comparing mothers on leave in California to mothers in other states who are sick or on vacation, and thus may not be using their time off work to spend more time with their children. Although the results for mothers who are not currently working appear to be in the right direction, I cannot be certain I am capturing the effects of the policy.

1.5.4 Heterogeneity

Other studies examining CA-PFL have found larger, positive effects for certain groups, such as disadvantaged mothers. For example, when examining take up of the policy, Rossin-Slater et al. (2013) find the policy had larger effects for black, Hispanic, unmarried, and low educated mothers. The duration of leave for these women increased by an average of 6 weeks, as opposed to 3 weeks for their white or higher

educated counterparts. Additionally, when examining the effects of the policy on child health, Lichtman-Sadot and Bell (2017) find the improvements in child health to be driven by children from mothers with lower educational attainment or from households with a lower socioeconomic ranking. On the other hand, studies examining the effects of the FMLA find married or higher educated mothers may benefit more since they are most able to take advantage of unpaid leave (Han et al., 2009).

Table 1.8 explores the heterogeneity of results by splitting the sample based on parental demographic characteristics. When examining differential effects on child care patterns by race, results show CA-PFL has very large significant effects for white mothers, but no effects for non-white mothers. Panel A shows that white mothers increase their time in child care by roughly 13 hours per week, or 63 percent, which is much larger than the baseline result. Results for different levels of education, presented in Panel B, show the policy increases child care for both high and low educated mothers.⁹ Higher educated mothers increase their time in total child care by 33 percent, and spend significantly more time in both basic care and educational and recreational care activities. Mothers with lower levels of education also increase child care time by approximately 30 percent, which appears to be driven by these mothers spending more time in educational and recreational care.

Table 1.9 investigates if paid family leave affects parental time inputs differently by child birth order. All mothers, regardless of whether this is their first or third birth, increase the amount of time spent in child care as a result of the policy. While first time mothers and mothers having their third child increase their time investments by roughly the same amount, first time mothers appear to split the time equally between basic and educational/recreational care, while more experienced mothers spend all this additional time in basic care. Mothers giving birth to their second child see the largest increase in child care time as a result of the policy, with a 47 percent increase in the time spent in care. Over half of this result is driven by increases in basic care, but these mothers also experience large increases in educational and recreational care.

⁹ High education parents are those that have at least some college or more years of educational attainment, while low educated parents are those with a high school degree or fewer years of education.

1.5.5 Short Run versus Long Run Effects

Thus far, we have seen CA-PFL increases maternal time with infant children, both for mothers currently on leave and those who are working. Since we see these effects continue for mothers who are working, it is important to understand how long these effects persist. Parental time investments are important for child skill development, both when children are infants and as they age. In order to determine if the policy affects parental time investments as children age, I change my sample to examine mothers with children between the ages of 2 and 4 in California and the rest of the US and examine their time use patterns before and after the policy change.¹⁰

Results in Table 1.10 replicate the results for infants in the first panel and separate the results by child age in the subsequent panels. They show mothers continue to increase their time in child care as children age as a result of exposure to CA-PFL. Mothers with an infant see the largest increases in time, but mothers of 2 and 3 year old children who were eligible for paid leave also continue to increase their time in child care. For mothers of older children, the additional time is spent mainly in basic care activities.

Table 1.11 breaks down the broader child care variables into their more narrow time use components. For mothers of two year old children, increases in basic care are driven by more time spent caring for infants and providing medical care, while mothers of three year old children increase their time in other care and medical care. There are marginal changes in care of older children and other care for mothers of four year olds. These results provide evidence that as a result of the policy, parents are providing more medical care to their children. This is consistent with the hypothesis from Lichtman-Sadot and Bell (2017) that prompt medical care could be one of the mechanisms driving improved health outcomes of elementary school age children that were exposed to CA-PFL.

1.6 Results for Fathers

Baseline results for fathers are presented in the bottom panel of Table 1.4. It appears that CA-PFL does not impact the amount of time fathers spend in all child care activities. However, when examining the

¹⁰ Tests for parallel pre-trends for the sample of mothers with older children are presented in Appendix Table A1.6.

effects of the policy on the two categories of care, I do see effects. Fathers reduce their time in basic care by 24 percent, or roughly 1.3 hours per week, while increasing their time in educational or recreational care by 30 percent, or 1.4 hours per week.¹¹

When examining the more narrow types of child care activities in the bottom panel of Table 1.5, I find fathers decrease the amount of time in infant care, other child care, and medical care, but they increase the amount of time spent caring for older children. This suggests there may be possible beneficial spillovers to older children as a result of paid family leave. Upon further examination of the components of educational and recreational care, I find that there is a reduction in the time fathers spend reading, talking, and supervising, but a 45 percent increase in the time spent playing with children.

Lastly, Table 1.6 explores my choice of sample by estimates the baseline model with all fathers, regardless of employment status, and then separately by those who are currently employed and out of the labor force or non-employed. For all fathers, there are significant increases in educational and recreational care and marginally significant increases in all child care. This result is largely driven by employed fathers. Those who report being currently non-employed see increases in time spent in basic care activities, however the sample size for this group is very small.

Combining these findings with the results for mothers, they may point to specialization occurring between parents regarding the types of activities that are performing with their children. We know from the literature that CA-PFL increase the amount of leave new mothers take by 3 to 6 weeks, while fathers saw only a one week increase in leave (Rossin-Slater et al., 2013; Baum and Ruhm, 2014). It may be the case that since mothers are spending more time on leave, they become better at basic care activities, such as changing diapers or putting children down for a nap. Therefore fathers do not have the opportunity to learn how to perform these activities since mothers always do them, even when fathers are home. This may suggest that for more routine basic care activities, there are greater returns to experience. On the other hand,

¹¹ When shortening the length of the post period used in the analysis, results change slightly. Appendix Table A1.4 shows fathers significantly reduce their time in all child care and basic care, while the time spent in educational and recreational care is positive but insignificant.

educational or recreational activities may have smaller returns to experience because these activities are less structured. For example, playing with children may differ from day to day depending on the child's mood or current interests. The difference in the returns to experience may be the reason why we see time spent in basic care decrease for fathers while they increase their time in educational and recreational care.

1.7 Alternate Time Use Outcomes

This next section examines alternate time use outcomes to determine if and how CA-PFL affects parental time outside of child care. More specifically, I examine how time spent in leisure, unpaid domestic work, and market work changes as a result of the policy. The definitions of these alternate time use variables are similar to those described by Aguiar and Hurst (2007). I use two definitions of leisure. The first, I call Leisure 1, consists of socializing, passive leisure (such as reading books, watching television), active leisure (such as playing sports), volunteering, pet care, and gardening, and it is a very narrow definition of leisure. The second definition is slightly broader and takes into account all the activities included in Leisure 1 but adds personal care activities, such as sleeping, eating, or showering. I call this measure Leisure 2. Unpaid domestic work (also known as nonmarket work) consists of activities such as meal preparation and clean up, laundry, vacuuming, and grocery shopping or acquiring other goods and services (except medical care or education). Lastly, market work includes all time spent in paid work, including main and secondary jobs, as well as time spent in breaks at work or time looking for a job.¹²

The literature has found that when parents face time constraints due to employment, they respond in ways to prevent interference in time in child care. For example, Bianchi et al. (2006) find that working mothers reduce their time spent in personal care (showering or sleeping), leisure, and domestic work in order to spend more time with children. Thus, if the time constraint is somewhat alleviated as a result of paid leave, I would expect to see increases in time spent in these activities in addition to increases in child care.

¹² For more information on the activities included in each category, see Appendix Table A1.7. Additionally, pre-trend tests are available in Appendix Table A1.8 for each of the alternate outcomes.

Table 1.12 presents the regression results for these alternate time use outcomes. For the more narrow definition of leisure, Leisure 1, there does not appear to be a significant effect for mothers, although the estimated coefficient is positive. However, when including personal care activities in the broader measure of leisure, CA-PFL significantly increases the amount of time new mothers spend in leisure by 3.3 hours per week. For mothers, it appears that paid leave does not increase the amount of time they spend watching television or going out to dinner, but rather it increases the amount of time they spend sleeping or showering. For fathers, there is a decrease in time spent in leisure for both the narrow and broad measure, with a 2.7 hour and 2 hour decrease for Leisure 1 and Leisure 2 respectively. For fathers, it appears the policy leads them to reduce their time spent in more traditional leisure activities, such as playing in a sports league or grabbing drinks with coworkers after work.

Both mothers and fathers increase the amount of time spent in unpaid domestic work as a result of the policy. Mothers spend an additional 5.5 hours in domestic work, while fathers spend 3.5 hours more per week. Lastly, mothers and fathers both decrease their time in market work after CA-PFL was implemented, although the effects are much larger for mothers. New mothers reduce their time spent in market work by 11 hours per week, whereas fathers only decrease their time in paid work by 3.5 hours.

1.8 Conclusion

Parental time investments play a significant role in child development and thus it is important to understand how public policy can affect the amount of time parents spend with their children. This chapter is the first to examine how California Paid Family Leave impacts the amount of time parents spend with their children. This is also the first study to examine how effects differ for mothers and fathers, mothers who are on leave versus mothers who have returned to work, and mothers of infants versus mothers of older children.

Results suggest mothers increase the amount of time spent in child care by 34 percent, or by about 6.3 hours per week. Over half of this additional time is spent in basic care activities, such as breastfeeding or bathing, while the other portion is due to more time spent in educational or recreational activities, such

as reading or playing. On net, the policy did not have large impacts on the total amount of time fathers devoted to child care, but it did change how they spent that time. Fathers reduce the amount of time spent in basic care by 24 percent, but increase their time spent in educational or recreational activities by 30 percent as a result of the policy. The differences in the amount of time mothers and fathers spend in these activities may be driven by differences in returns to experience. Since mothers take longer periods of leave compared to fathers, they spend more time performing more routine basic care activities, such as changing diapers, and thus become better at these activities over time. Therefore, fathers spend more time in activities that do not have such high returns to experience, and so we see them spending more time playing with their children.

Mothers continue to increase their time in child care after they return to work. The results are similar for both mothers who are surveyed on weekends and weekdays, and are mainly driven by increased in educational and recreational care. There is also evidence to suggest the increases in maternal time use are not limited to when the child is an infant, but mothers exposed to CA-PFL continue to spend more time with their children as they grow up. Results for mothers of two and three year old children born after the policy indicate increases in basic child care activities. Upon further investigation into the more narrow time use categories, these results are primarily driven by increased time caring for infants, and providing medical and other types of care.

Lastly, when examining how the policy affects other time use outcomes, I find both mothers and fathers reduce their time in market work and increase their time in unpaid domestic work. Fathers also reduce their time in leisure, while mothers increase their amount of leisure time, although this increase is mainly driven by more time spent in personal care activities, such as grooming or sleeping.

These results may help shed light on some of the potential mechanisms discussed in other work examining the effects of CA-PFL, particularly those on infant and child health outcomes. Both Pihl and Basso (2018) and Lichtman-Sadot and Bell (2017) believe increased breastfeeding and more time spent in preventative care may lead to reduced infant hospitalizations and improved health outcomes for children entering elementary school. Although I cannot distinguish the exact amount of time mothers spend

breastfeeding, it is a component of basic child care activities and I do find the policy increases the amount of time spent in this type of care. I am able to identify the amount of time providing medical care, and although there are no changes as a result of the policy for infants, mothers of two and three year old children spend more time in medical care after being exposed to CA-PFL. In addition to providing evidence of potential mechanisms driving some of the effects we see on child health outcomes, this study highlights the effectiveness of paid family leave as a potential tool for policy makers to consider if they are aiming to affect the amount of time parents spend with their children.

Table 1.1: Summary Statistics

Demographic Variables				
	Mothers		Fathers	
	Mean	SD	Mean	SD
Married	0.73	0.45	0.94	0.23
White	0.67	0.47	0.71	0.45
Black	0.12	0.32	0.05	0.21
Hispanic	0.16	0.37	0.17	0.38
Asian	0.04	0.19	0.05	0.22
Other Race	0.02	0.15	0.02	0.15
Less than HS Degree	0.09	0.29	0.10	0.30
High School Degree	0.22	0.41	0.23	0.42
Some College	0.20	0.40	0.17	0.37
College or Higher Degree	0.50	0.50	0.51	0.50
Age 16-24	0.27	0.44	0.13	0.33
Age 25-34	0.51	0.50	0.54	0.50
Age 35-44	0.18	0.39	0.28	0.45
Age 45-54	0.04	0.19	0.06	0.24
Number of Children	1.94	1.07	2.04	1.08
Income Quartile	2.71	1.15	2.89	1.07
Weekday Survey	0.71	0.45	0.70	0.46
Weekend Survey	0.29	0.45	0.30	0.46
Time Use Variables				
	Mothers		Fathers	
	Mean	SD	Mean	SD
All Time with Child	18.41	16.25	10.05	13.16
Time in Basic Care	12.26	12.67	5.32	9.14
Time in Edu/Recreational Care	6.15	9.37	4.73	8.66
Care of Infants	10.19	11.13	4.53	8.17
Care of Older Children	0.58	2.52	0.23	1.36
Other Childcare	0.90	2.15	0.36	1.79
Medical Care	0.59	4.96	0.20	3.07
Playing	5.08	8.74	4.12	8.28
Reading or Talking	0.64	2.06	0.41	1.45
Supervise or Homework Help	0.43	2.25	0.20	1.41
N	2,898		3,246	

Notes: Summary statistics are weighted using recommended sample weights inflated to the national population. The sample is limited to employed women between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household. Time with children is the sum of the time spent in basic child care and educational/recreational activities. Time in basic care is the sum of care of infants, care of older children, medical care, and other childcare. Time in educational/recreational care is the sum of playing, reading or talking, and supervising or help with homework.

Table 1.2A: Summary Statistics by Treatment Group and Time Period for Mothers

	California			Rest of US			Diff-in-Diff
	Pre	Post	Diff	Pre	Post	Diff	
Married	0.717 (0.454)	0.712 (0.454)	-0.005	0.766 (0.424)	0.720 (0.449)	-0.046*	-0.041
White	0.371 (0.487)	0.369 (0.484)	-0.003	0.747 (0.435)	0.694 (0.461)	-0.053**	-0.051
Black	0.050 (0.220)	0.046 (0.209)	-0.004	0.092 (0.289)	0.131 (0.338)	0.039**	0.043
Asian	0.133 (0.342)	0.133 (0.340)	0.00	0.015 (0.122)	0.029 (0.167)	0.014	0.014
Hispanic	0.433 (0.499)	0.463 (0.500)	0.030	0.119 (0.324)	0.129 (0.335)	0.009	-0.020
Other Race	0.013 (0.113)	0.012 (0.111)	-0.001	0.027 (0.161)	0.022 (0.147)	-0.005	-0.004
Less than HS	0.121 (0.329)	0.134 (0.342)	0.013	0.102 (0.302)	0.082 (0.275)	-0.020	-0.033
HS Degree	0.148 (0.358)	0.201 (0.402)	0.053	0.236 (0.425)	0.216 (0.411)	-0.020	-0.073
Some College	0.181 (0.388)	0.225 (0.419)	0.044	0.234 (0.424)	0.191 (0.393)	-0.043*	-0.087
BA or Higher	0.550 (0.501)	0.439 (0.498)	-0.110	0.429 (0.495)	0.511 (0.500)	0.083***	0.193
Age 16-24	0.260 (0.442)	0.296 (0.456)	0.036	0.261 (0.440)	0.263 (0.440)	0.002	-0.034
Age 25-34	0.483 (0.504)	0.436 (0.497)	-0.047	0.509 (0.500)	0.521 (0.500)	0.012	0.059
Age 35-44	0.192 (0.397)	0.198 (0.400)	0.006	0.209 (0.407)	0.179 (0.383)	-0.030	-0.036
Age 45-54	0.066 (0.250)	0.070 (0.256)	0.005	0.021 (0.143)	0.037 (0.189)	0.016	0.012
Num of Kids	2.100 (1.078)	2.155 (1.432)	0.055	2.017 (1.105)	1.904 (1.012)	-0.113**	-0.168
Weekday	0.723 (0.451)	0.767 (0.424)	0.044	0.701 (0.458)	0.711 (0.453)	0.010	-0.034
Weekend	0.277 (0.451)	0.233 (0.424)	-0.044	0.299 (0.458)	0.289 (0.453)	-0.010	0.034
Income QT	2.719 (1.092)	2.831 (1.146)	0.112	2.566 (1.135)	2.722 (1.147)	0.162**	0.044
N	65	198		576	2,059		

Notes: The first four columns present means and standard deviations for the treatment and control groups in the pre and post treatment period.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.2B: Summary Statistics by Treatment Group and Time Period for Fathers

	California			Rest of US			Diff-in-Diff
	Pre	Post	Diff	Pre	Post	Diff	
Married	0.943 (0.233)	0.924 (0.266)	-0.019	0.956 (0.205)	0.943 (0.232)	-0.013	0.006
White	0.491 (0.503)	0.357 (0.480)	-0.134*	0.755 (0.430)	0.756 (0.430)	0.001	0.135
Black	0.045 (0.209)	0.022 (0.147)	-0.023	0.033 (0.179)	0.052 (0.223)	0.019*	0.042
Asian	0.123 (0.330)	0.106 (0.309)	-0.017	0.042 (0.201)	0.042 (0.201)	0.00	0.017
Hispanic	0.341 (0.477)	0.492 (0.501)	0.151**	0.161 (0.368)	0.131 (0.338)	-0.030*	-0.181
Other Race	0 0	0.023 (0.150)	0.023	0.017 (0.128)	0.023 (0.150)	0.006	-0.017
Less than HS	0.237 (0.428)	0.228 (0.420)	-0.009	0.110 (0.313)	0.078 (0.268)	-0.033**	-0.023
HS Degree	0.099 (0.301)	0.251 (0.434)	0.151**	0.239 (0.426)	0.223 (0.416)	-0.016	-0.168
Some College	0.186 (0.392)	0.127 (0.334)	-0.059	0.124 (0.330)	0.177 (0.381)	0.053***	0.112
BA or Higher	0.478 (0.503)	0.395 (0.490)	-0.083	0.527 (0.500)	0.523 (0.500)	-0.004	0.079
Age 16-24	0.184 (0.390)	0.135 (0.342)	-0.049	0.118 (0.322)	0.128 (0.334)	0.010	0.059
Age 25-34	0.400 (0.493)	0.541 (0.499)	0.141*	0.570 (0.495)	0.533 (0.499)	-0.037	-0.178
Age 35-44	0.380 (0.488)	0.278 (0.449)	-0.102	0.271 (0.445)	0.274 (0.446)	0.003	0.105
Age 45-54	0.036 (0.188)	0.046 (0.210)	0.010	0.041 (0.198)	0.065 (0.246)	0.024*	0.014
Num of Kids	2.063 (1.004)	2.214 (1.274)	0.151	1.982 (1.051)	2.026 (1.051)	0.044	-0.107
Weekday	0.683 (0.468)	0.732 (0.444)	0.049	0.681 (0.467)	0.706 (0.456)	0.025	-0.024
Weekend	0.317 (0.468)	0.268 (0.444)	-0.049	0.319 (0.467)	0.294 (0.456)	-0.025	0.024
Income QT	2.814 (1.153)	2.708 (1.164)	-0.107	2.820 (1.043)	2.929 (1.060)	0.113**	0.215
N	81	277		657	2,231		

Notes: The first four columns present means and standard deviations for the treatment and control groups in the pre and post treatment period. The last column provides the results from t-tests testing to see if there are significant differences between the treatment and control group in the pre-period.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.3: Baseline Results

Panel A: Results for Mothers

	All Child Care		Basic Care		Educational/Recreational Care	
	No Controls	With Controls	No Controls	With Controls	No Controls	With Controls
California*Post	6.100*** (1.246)	6.346*** (1.216)	4.106*** (1.057)	4.206*** (1.036)	1.994*** (0.461)	2.140*** (0.474)
Mean		18.41		12.26		6.15
Observations	2,898	2,898	2,898	2,898	2,898	2,898
R-Squared	0.044	0.118	0.040	0.094	0.038	0.071

Panel B: Results for Fathers

	All Child Care		Basic Care		Educational/Recreational Care	
	No Controls	With Controls	No Controls	With Controls	No Controls	With Controls
California*Post	-0.631 (0.600)	0.147 (0.624)	-1.734*** (0.470)	-1.281** (0.505)	1.103*** (0.363)	1.428*** (0.355)
Mean		10.05		5.32		4.73
Observations	3,246	3,246	3,246	3,246	3,246	3,246
R-Squared	0.033	0.087	0.021	0.056	0.029	0.059

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Time use variables were converted to hours per week by multiplying each variable by 7 and dividing by 60. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. The sample is limited to employed men and women between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household. Time with children is the sum of the time spent in basic care and time spent in educational or recreational care.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.4: Breakdown of Care Variables

Panel A: Results for Mothers						
	Care of Infants	Basic Care		Educational/Recreational Care		
		Care of Older Children	Other Care	Medical Care	Playing	Reading & Talking
CA*Post	3.201*** (0.917)	0.669** (0.293)	0.136 (0.173)	0.200 (0.196)	2.197*** (0.431)	0.444*** (0.0849)
Mean	10.19	0.58	0.90	0.59	5.08	0.64
Observations	2,898	2,898	2,898	2,898	2,898	2,898
R-Squared	0.084	0.028	0.064	0.033	0.081	0.060
Panel B: Results for Fathers						
	Care of Infants	Basic Care		Educational/Recreational Care		
		Care of Older Children	Other Care	Medical Care	Playing	Reading & Talking
CA*Post	-1.054** (0.479)	0.309*** (0.0598)	-0.309*** (0.0691)	-0.228** (0.110)	1.866*** (0.336)	-0.148** (0.0617)
Mean	4.53	0.23	0.36	0.20	4.12	0.41
Observations	3,246	3,246	3,246	3,246	3,246	3,246
R-Squared	0.064	0.026	0.026	0.033	0.058	0.052

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights. Time use variables were converted to hours per week by multiplying each variable by 7 and dividing by 60. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. The sample is limited to employed men and women between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household. Care of infants is the amount of time parents spent caring for children under the age of 5, while care of older children is the amount of time spent caring for children ages 5 to 17.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.5: Test for Significant Pre-Trends

Panel A: Results for Mothers			
	All Care	Basic Care	Edu/Recreational Care
Trend	2.133 (1.288)	1.260 (1.091)	0.872 (0.757)
California*Trend	-0.993 (2.125)	0.0419 (1.898)	-1.035 (1.274)
Observations	641	641	641
R-Squared	0.254	0.222	0.152
Panel B: Results for Fathers			
	All Care	Basic Care	Edu/Recreational Care
Trend	0.723 (0.841)	-0.218 (0.771)	0.941*** (0.336)
California*Trend	0.622 (1.430)	0.0797 (1.181)	0.542 (0.794)
Observations	738	738	738
R-Squared	0.147	0.150	0.096

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Time use variables were converted to hours per week by multiplying each variable by 7 and dividing by 60. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. The sample is limited to employed parents between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household. Time with children is the sum of the time spent in basic care and time spent in educational/recreational care. These regressions were only run in the pre-period, which is from 1999 to June 2004.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.6: Results for All Parents, Split by Employment Status

Panel 1: All Parents						
Mothers			Fathers			
	All Care	Basic Care	Edu/Rec Care	All Care	Basic Care	Edu/Rec Care
CA*Post	2.490** (1.001)	1.383* (0.799)	1.107*** (0.412)	1.070* (0.621)	0.153 (0.493)	0.917*** (0.309)
Mean	20.99	13.70	7.29	10.54	5.89	4.96
Observations	5,046	5,046	5,046	3,539	3,539	3,539
R-Squared	0.111	0.086	0.066	0.076	0.045	0.062
Panel 2: Employed Parents						
Mothers			Fathers			
	All Care	Basic Care	Edu/Rec Care	All Care	Basic Care	Edu/Rec Care
CA*Post	6.346*** (1.216)	4.206*** (1.036)	2.140*** (0.474)	0.147 (0.624)	-1.281** (0.505)	1.428*** (0.355)
Mean	18.41	12.26	6.15	10.05	5.32	4.73
Observations	2,898	2,898	2,898	3,246	3,246	3,246
R-Squared	0.118	0.094	0.071	0.087	0.056	0.059
Panel 3: Non-Employed Parents						
Mothers			Fathers			
	All Care	Basic Care	Edu/Rec Care	All Care	Basic Care	Edu/Rec Care
CA*Post	-1.836 (1.227)	-1.708* (1.004)	-0.128 (0.606)	4.931 (3.091)	7.439** (3.103)	-2.509 (2.028)
Mean	24.27	15.53	8.74	15.42	8.17	7.25
Observations	2,148	2,148	2,148	293	293	293
R-Squared	0.191	0.135	0.134	0.427	0.282	0.503

Notes: Results are presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, employment status, and an indicator for weekday respondent, as well as state and year fixed effects. The sample is limited to employed parents between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household. The second and third panel split the sample by employed and non-employed parents. Employed parents report currently having a job but they may either be working or on paid leave at the time they are surveyed. Non-employed parents are those who report they are not employed, which may be a result of retirement, being a student or a home-maker, and does not indicate unemployment, but rather they are not participating in the labor force.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.7: On Leave versus Return to Work

Panel A: Time in All Child Care						
	Mothers with Positive Work Hours			Mothers with Zero Work Hours		
	All Days	Weekends	Weekday	All Days	Weekends	Weekday
All Care	4.252*** (1.426)	5.429** (2.169)	3.904** (1.633)	6.388*** (2.064)	2.743* (1.513)	10.70** (4.359)
Mean	15.55	14.26	15.77	23.05	18.81	27.44
Observations	1,511	447	1,064	1,387	1,016	371
R-Squared	0.115	0.311	0.116	0.229	0.193	0.288
Panel B: Time in Basic Care Activities						
	Mothers with Positive Work Hours			Mothers with Zero Work Hours		
	All Days	Weekends	Weekday	All Days	Weekends	Weekday
Basic Care	0.197 (0.840)	2.381 (1.881)	-0.140 (0.909)	7.651*** (1.930)	2.323* (1.228)	12.86*** (4.437)
Mean	10.35	8.52	10.67	15.34	12.21	18.59
Observations	1,511	447	1,064	1,387	1,016	371
R-Squared	0.096	0.220	0.097	0.192	0.145	0.264
Panel C: Time in Educational/Recreational Activities						
	Mothers with Positive Work Hours			Mothers with Zero Work Hours		
	All Days	Weekends	Weekday	All Days	Weekends	Weekday
Edu/Rec Care	4.056*** (0.815)	3.048*** (1.094)	4.044*** (1.009)	-1.263* (0.744)	0.420 (0.815)	-2.167 (1.826)
Mean	5.20	5.74	5.10	7.70	6.60	8.42
Observations	1,511	447	1,064	1,387	1,016	371
R-Squared	0.089	0.303	0.094	0.143	0.150	0.234

Notes: Results are presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. The sample is limited to employed mothers age 16 to 54 with a child under (or equal to) the age of 1 in the household and split by those who report working some positive amount of time or zero hours when they were surveyed. Within each category, I also separate the data based on what day of the week the mother was surveyed.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.8: Heterogeneity by Maternal Characteristics

Panel A: Maternal Race						
	White Mothers			Non-White Mothers		
	All Care	Basic Care	Edu/Rec Care	All Care	Basic Care	Edu/Rec Care
CA*Post	12.94*** (1.438)	9.590*** (1.268)	3.350*** (0.525)	2.481 (1.933)	1.367 (1.585)	1.114 (0.754)
Mean	20.45	13.32	7.12	14.29	10.09	4.20
Observations	1,976	1,976	1,976	922	922	922
R-Squared	0.094	0.098	0.069	0.176	0.142	0.143
Panel B: Educational Attainment						
	High Education Mothers			Low Education Mothers		
	All Care	Basic Care	Edu/Rec Care	All Care	Basic Care	Edu/Rec Care
CA*Post	6.792*** (1.412)	4.953*** (1.242)	1.839** (0.742)	4.115* (2.174)	2.364 (1.765)	1.751* (0.987)
Mean	20.30	13.39	6.91	14.12	9.68	4.43
Observations	2,110	2,110	2,110	788	788	788
R-Squared	0.106	0.092	0.073	0.200	0.179	0.137

Notes: Results are presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. The sample is limited to employed parents age 16 to 54 with a child under (or equal to) the age of 1 in the household and split by demographic characteristics. High education parents are those who have attended some college or have a Bachelor's or higher degree, while low educated parents have a high school degree or fewer years of education.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.9 – Heterogeneity by Birth Parity

Panel A: First Birth			
	All Care	Basic Care	Edu/Recreational Care
California*Post	4.563** (1.709)	2.485* (1.381)	2.078** (0.881)
Mean	18.13	11.21	6.91
Observations	1,113	1,113	1,113
R-Squared	0.176	0.182	0.116
Panel B: Second Birth			
	All Care	Basic Care	Edu/Recreational Care
California*Post	9.045*** (1.678)	5.457*** (1.596)	3.588*** (0.958)
Mean	19.12	13.08	6.04
Observations	1,089	1,089	1,089
R-Squared	0.191	0.170	0.134
Panel C: Third or Higher Birth			
	All Care	Basic Care	Edu/Recreational Care
California*Post	4.292** (2.007)	4.672*** (1.665)	-0.379 (0.832)
Mean	17.79	12.81	4.98
Observations	696	696	696
R-Squared	0.207	0.197	0.146

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. The sample is limited to employed parents between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household and split based on birth parity.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.10 – Short Run versus Long Run Effects of CA-PFL

Panel A: Children Age 1 and Younger			
	All Care	Basic Care	Edu/Recreational Care
California*Post	6.346*** (1.216)	4.206*** (1.036)	2.140*** (0.474)
Mean	18.41	12.26	6.15
Observations	2,898	2,898	2,898
R-Squared	0.118	0.094	0.071
Panel B: 2 Year Olds			
	All Care	Basic Care	Edu/Recreational Care
California*Post	2.312** (0.953)	3.037*** (0.565)	-0.725 (0.666)
Mean	13.33	8.29	5.05
Observations	1,372	1,372	1,372
R-Squared	0.123	0.110	0.118
Panel C: 3 Year Olds			
	All Care	Basic Care	Edu/Recreational Care
California*Post	1.108* (0.598)	1.490*** (0.518)	-0.381 (0.410)
Mean	11.58	7.32	4.26
Observations	1,320	1,320	1,320
R-Squared	0.156	0.128	0.112
Panel D: 4 Year Olds			
	All Care	Basic Care	Edu/Recreational Care
California*Post	-0.520 (0.931)	-0.111 (0.522)	-0.409 (0.763)
Mean	10.36	6.55	3.81
Observations	1,139	1,139	1,139
R-Squared	0.131	0.111	0.092

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. Each panel uses a sample of employed parents age 16 to 54, but the age of the youngest child in the household in each panel.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.11: Long Run Effects Variable Breakdown

Panel A: 2 Year Olds							
	Care of Infants	Basic Care		Educational/Recreational Care			
		Care of Older Children	Other Care	Medical Care	Playing	Reading & Talking	Supervision & HW Help
CA*Post	0.929** (0.449)	0.0435 (0.122)	-0.00794 (0.193)	2.072*** (0.240)	-0.565 (0.615)	-0.553*** (0.177)	0.393*** (0.137)
Mean	6.14	0.53	1.12	0.50	3.68	0.95	0.42
Observations	1,372	1,372	1,372	1,372	1,372	1,372	1,372
R-Squared	0.101	0.131	0.117	0.044	0.119	0.093	0.095
Panel B: 3 Year Olds							
	Care of Infants	Basic Care		Educational/Recreational Care			
		Care of Older Children	Other Care	Medical Care	Playing	Reading & Talking	Supervision & HW Help
CA*Post	0.393 (0.343)	0.0205 (0.143)	0.716*** (0.203)	0.360*** (0.116)	-0.0603 (0.349)	-0.225 (0.174)	-0.0964 (0.129)
Mean	5.13	0.45	1.40	0.34	2.57	1.04	2.15
Observations	1,320	1,320	1,320	1,320	1,320	1,320	1,320
R-Squared	0.109	0.080	0.143	0.049	0.092	0.114	0.114
Panel A: 4 Year Olds							
	Care of Infants	Basic Care		Educational/Recreational Care			
		Care of Older Children	Other Care	Medical Care	Playing	Reading & Talking	Supervision & HW Help
CA*Post	-0.199 (0.368)	0.250* (0.136)	-0.394* (0.210)	0.233 (0.147)	-0.396 (0.481)	0.111 (0.237)	-0.123 (0.253)
Mean	4.46	0.45	1.33	0.31	2.11	0.92	0.77
Observations	1,139	1,139	1,139	1,139	1,139	1,139	1,139
R-Squared	0.094	0.124	0.086	0.129	0.088	0.098	0.118

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. Each panel uses a sample of employed mothers age 16 to 54, but the age of the youngest child in the household in each panel.

*** p<0.01, ** p<0.05, * p<0.1

Table 1.12 – Alternate Time Use Outcomes

Panel A: Results for Mothers				
	Leisure 1	Leisure 2	Domestic Work	Market Work
California*Post	1.540 (1.050)	3.348*** (1.116)	5.522*** (0.977)	-11.32*** (1.463)
Mean	24.88	95.01	15.25	29.07
Observations	2,898	2,898	2,898	2,898
R-Squared	0.141	0.187	0.093	0.171
Panel B: Results for Fathers				
	Leisure 1	Leisure 2	Domestic Work	Market Work
California*Post	-2.695*** (0.911)	-2.022* (1.071)	3.523*** (0.617)	-3.514*** (1.308)
Mean	29.28	97.16	9.29	41.10
Observations	3,246	3,246	3,246	3,246
R-Squared	0.224	0.305	0.098	0.335

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. The sample is limited to employed parents between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household. The following variables available for download through AHTUS are aggregated to create Leisure 1: (1) sports, exercise, and outdoor activity, (2) media and computing, (3) adult care, civic, voluntary, and religious, (4) in home free leisure time, and (5) out of home free leisure time. Leisure 2 combines Leisure 1 and personal care activities.

*** p<0.01, ** p<0.05, * p<0.1

APPENDIX

A1.1 Description of Time Use Surveys

Year	1999-2000	2003-2013
Survey Title	National Survey of Parents (NSP)	American Time Use Survey (ATUS)
Collector	Collected by the University of Maryland Research Centre, funded by the Alfred P. Sloan Foundation Working Families Program	Bureau of Labor Statistics, USA Department of Labor
Fieldwork Period	Main collection from May 1999-June 2000 with some follow up through 2001	Conducted continuously throughout each year
Sampling Method & Study Design	<p>The aim of this study is to gain insight into what parents do, how they balance multiple demands for their time, and what value they place on various activities. The survey uses random digit dialing to gather a national sample of parents with children under the age of 18 who are living at home. They collected one 24-hour time diary about the activities from the previous day from one parent per household using computer assisted telephone interviewing. Diaries started at midnight and collected the starting and stopping time of main activities, as well as two simultaneous activities, the presence of other individuals, and location. Age was not originally collected in the survey, although most of the participants were re-contacted for their age. For participants who were unable to be re-contacted, age was estimated from their responses to various questions in the survey. Note that much of the published research combines this data with the 1998-1999 FISCT data to create a larger sample size.</p>	<p>This study monitors what people are doing on any given day in the US. The survey creates a nationally representative sample of adults age 15 and older from a sub-sample of households that have completed the final wave of the Current Population Survey (CPS). Diaries are collected around two months after the final CPS interview for one person per household using computer assisted telephone interviewing. For households who did not have a telephone, they were sent phone cards to enable them to participate in the survey free of charge. The diaries gather information about the previous day's activities including the main activity (or secondary child care, but no secondary activities), who else was present, and the location or mode of transport. Half of the diaries were collected on weekdays and the other half were collected on weekends. Interviews were conducted in English and Spanish.</p>
Sample Size	1,200 diarists	136,870
Response Rate	64%	52.5% - 57.8%

Appendix Table 1.2: Summary Statistics by Sample

Demographic Variables				
	Mothers		Fathers	
	NSP	ATUS	NSP	ATUS
Married	0.82 (0.39)	0.73 (0.44)	0.96 (0.21)	0.94 (0.23)
White	0.73 (0.45)	0.67 (0.47)	0.80 (0.40)	0.71 (0.45)
Black	0.19 (0.40)	0.12 (0.32)	0.15 (0.36)	0.05 (0.21)
Hispanic	0.08 (0.27)	0.16 (0.37)	0.05 (0.23)	0.17 (0.38)
Asian	0.02 (0.14)	0.04 (0.19)	0.00	0.05 (0.22)
Other Race	0.06 (0.23)	0.02 (0.15)	0.05 (0.23)	0.02 (0.15)
Less than HS Degree	0.10 (0.31)	0.09 (0.29)	0.10 (0.30)	0.10 (0.30)
High School Degree	0.25 (0.44)	0.22 (0.41)	0.34 (0.48)	0.23 (0.42)
Some College	0.12 (0.32)	0.20 (0.40)	0.24 (0.43)	0.17 (0.38)
College or Higher Degree	0.52 (0.50)	0.50 (0.50)	0.33 (0.48)	0.51 (0.50)
Age 16-24	0.14 (0.35)	0.27 (0.44)	0.08 (0.28)	0.13 (0.33)
Age 25-34	0.60 (0.50)	0.51 (0.50)	0.61 (0.49)	0.54 (0.50)
Age 35-44	0.23 (0.42)	0.18 (0.39)	0.28 (0.46)	0.28 (0.45)
Age 45-54	0.03 (0.17)	0.04 (0.19)	0.03 (0.16)	0.06 (0.24)
Number of Children	2.14 (0.95)	1.94 (1.07)	1.79 (0.80)	2.04 (1.08)
Income Quartile	2.66 (1.19)	2.71 (1.15)	2.58 (1.09)	2.89 (1.07)
Weekday Survey	0.65 (0.48)	0.71 (0.45)	0.82 (0.39)	0.70 (0.46)
Weekend Survey	0.35 (0.48)	0.29 (0.45)	0.18 (0.39)	0.30 (0.46)
Time Use Variables				
	Mothers		Fathers	
	NSP	ATUS	NSP	ATUS
All Time with Child	16.81 (12.59)	18.41 (16.25)	7.83 (8.51)	10.05 (13.16)
Time in Basic Care	13.55 (11.49)	12.26 (12.67)	5.29 (6.66)	5.32 (9.14)
Time in Edu/Recreational Care	3.27 (6.82)	6.15 (9.37)	2.54 (4.98)	4.73 (8.66)
Care of Infants	7.01	10.19	2.04	4.53

	(9.50)	(11.13)	(5.73)	(8.17)
Care of Older Children	5.43	0.58	2.86	0.23
	(8.09)	(2.53)	(4.78)	(1.36)
Other Childcare	1.10	0.90	0.39	0.36
	(2.19)	(2.15)	(0.92)	(1.78)
Medical Care	0.00	0.59	0.00	0.20
		(4.96)		(3.07)
Playing	2.37	5.08	2.06	4.12
	(5.56)	(8.74)	(4.98)	(8.28)
Reading or Talking	0.51	0.64	0.40	0.41
	(2.01)	(2.06)	(1.12)	(1.45)
Supervise or Homework Help	0.45	0.43	0.08	0.20
	(2.13)	(2.25)	(0.54)	(1.41)
N	45	2,853	36	3,210

Appendix Table 1.3: Robustness of Control Group for Mothers

Panel A: Drop States with TDI			
	All Care	Basic Care	Edu/Recreational Care
California*Post	6.180*** (1.323)	4.117*** (1.110)	2.063*** (0.505)
Mean	18.14	12.05	6.08
Observations	2,662	2,662	2,662
R-Squared	0.118	0.095	0.072
Panel B: Use Only States with TDI			
	All Care	Basic Care	Edu/Recreational Care
California*Post	7.722** (1.995)	4.885 (2.703)	2.894* (1.204)
Mean	19.42	13.11	6.30
Observations	499	499	499
R-Squared	0.147	0.044	0.123

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. The sample is limited to employed parents between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household. Time with children is the sum of the time spent in basic care and time spent in educational/recreational care. Hawaii, New York, New Jersey, and Rhode Island were dropped from the sample since they also offer TDI benefits for pregnancy.

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 1.4: Shorter Post Period (2004-2007)

Panel A: Results for Mothers			
	All Care	Basic Care	Edu/Recreational Care
California*Post	8.001*** (1.334)	4.091*** (1.168)	3.910*** (0.650)
Mean	19.26	13.01	6.26
Observations	1,440	1,440	1,440
R-Squared	0.157	0.125	0.090
Panel B: Results for Fathers			
	All Care	Basic Care	Edu/Recreational Care
California*Post	-1.653** (0.695)	-1.389** (0.597)	-0.264 (0.383)
Mean	9.36	5.09	4.26
Observations	1,615	1,615	1,615
R-Squared	0.119	0.099	0.085

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. The sample is limited to employed parents between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household. Time with children is the sum of the time spent in basic care and time spent in educational/recreational care. The data used in this analysis is the 1999-2000 National Survey of Parents and the 2003-2007 waves of the American Time Use Survey.

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 1.5: Balance Test

Dependent Variable	Mothers	Fathers
Married	0.0287 (0.0229)	0.00150 (0.0109)
White	0.0500* (0.0271)	-0.140*** (0.0187)
Black	-0.0382* (0.0201)	-0.0382*** (0.0106)
Asian	-0.0133*** (0.00478)	-0.0158** (0.00754)
Hispanic	0.0124 (0.0153)	0.180*** (0.0168)
Other Race	0.00616 (0.00885)	0.0167** (0.00691)
Less than High School	0.0398* (0.0204)	0.0123 (0.0206)
High School	0.0767*** (0.0269)	0.168*** (0.0225)
Some College	0.0914*** (0.0271)	-0.105*** (0.0175)
College or Higher Degree	-0.208*** (0.0246)	-0.0752*** (0.0221)
Age 16-24	0.0503* (0.0261)	-0.0648*** (0.0221)
Age 25-34	-0.0668** (0.0310)	0.179*** (0.0280)
Age 35-44	0.0310 (0.0250)	-0.101*** (0.0208)
Age 45-54	-0.0144** (0.00647)	-0.0138 (0.00835)
Number of Children	0.154* (0.0861)	0.126** (0.0597)
Income Quartile	-0.0791 (0.0584)	-0.203*** (0.0549)

Notes: Each cell presents the results of a separate regression with the dependent variable in the left hand column. These represent the results from running the baseline model without controls and using the demographic characteristic as the left hand side variable.

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 1.6 – Pre-Trends for Mothers of Older Children

Panel A: 2 Year Olds			
	All Care	Basic Care	Edu/Recreational Care
California*Trend	3.180** (1.509)	1.663 (1.059)	1.518* (0.897)
Observations	371	371	371
R-Squared	0.237	0.232	0.203
Panel B: 3 Year Olds			
	All Care	Basic Care	Edu/Recreational Care
California*Trend	-0.0476 (0.526)	0.561 (0.392)	-0.608 (0.460)
Observations	515	515	515
R-Squared	0.257	0.241	0.170
Panel C: 4 Year Olds			
	All Care	Basic Care	Edu/Recreational Care
California*Trend	-1.331*** (0.439)	-1.124*** (0.280)	-0.207 (0.355)
Observations	543	543	543
R-Squared	0.220	0.168	0.190

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. Each panel uses a sample of mothers age 16 to 54, but the age of the youngest child in the household in each panel. These regressions were only run using data from the pre-period.

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 1.7: Alternate Time Use Variable Description

Variable	Included Activities
Leisure 1	<p><i>Sports, Exercise, and Outdoor Activities:</i> sports and exercise, walking, cycling, outdoor recreation, physical activity/sports with child, hunting, fishing, boating, hiking, gardening, pet care</p> <p><i>Media and Computing:</i> read books, read periodicals, read newspapers, listen to music, listen to radio, watch television, writing by hand, conversation, phone, texting, use computer</p> <p><i>Adult Care, Civic, Voluntary, and Religious Activities:</i> adult care, general voluntary acts, political and civic acts, union and professional activity, volunteer child/family organization, volunteer fraternal organization, other formal volunteering, acts for religious organization, worship and religious acts</p> <p><i>In Home Free Leisure Time:</i> general indoor leisure, imputed in-home social, receive or visit friends, other in-home social games, play musical instrument, sing, act, artistic activity, crafts, hobbies, relax, think, do nothing</p> <p><i>Out of Home Free Leisure Time:</i> general out of home leisure, attend sporting event, got to cinema, theater, concert, opera, museums and exhibitions, attend other public events, restaurants/café/bars, parties or reception, imputed time away from home</p>
Leisure 2	<p><i>Personal Care:</i> general or other personal care, imputed personal or household care, sleep, imputed sleep, nap and rest, wash/dress/personal care, personal medical care, meals at work, other meals and snacks</p> <p><i>Leisure 1 activities</i></p>
Unpaid Domestic Work	Food preparation/cooking, set table/wash/put away dishes, cleaning, laundry, ironing, clothing repair, home repairs and maintain vehicle, other domestic work, purchase routine goods, purchase consumer durables, purchase personal services, purchase medical services, purchase repair and laundry services, financial and government services, purchase other services
Market Work	Main paid work (not at home), paid work at home, second job/other paid work, work breaks, other time at workplace, time looking for work

Appendix Table 1.8: Pre-Trends for Alternate Time Use Outcomes

Panel A: Results for Mothers				
	Leisure 1	Leisure 2	Unpaid Domestic Work	Market Work
California*Trend	3.979 (3.089)	-0.443 (4.054)	-0.970 (2.255)	-3.556 (2.962)
Observations	641	641	641	641
R-Squared	0.231	0.258	0.209	0.269
Panel B: Results for Fathers				
	Leisure 1	Leisure 2	Unpaid Domestic Work	Market Work
California*Trend	-3.161 (2.260)	-4.256* (2.393)	1.057 (0.951)	1.248 (3.018)
Observations	738	738	738	738
R-Squared	0.309	0.407	0.166	0.478

Notes: Results presented with state clustered standard errors and weighted using recommended sample weights inflated to the national population. Controls include marital status, educational attainment, race/ethnicity, age bins, number of children under the age of 18, income quartile, and an indicator for weekday respondent, as well as state and year fixed effects. The sample is limited to employed parents between the ages of 16 and 54 that report having a child under (or equal to) the age of 1 in household. The following variables available for download through AHTUS are aggregated to create Leisure 1: (1) sports, exercise, and outdoor activity, (2) media and computing, (3) adult care, civic, voluntary, and religious, (4) in home free leisure time, and (5) out of home free leisure time. Leisure 2 combines Leisure 1 and personal care activities. These regressions were only run in the pre-period, which is from 1999 to June 2004.

*** p<0.01, ** p<0.05, * p<0.1

Chapter 2: Can Parental Leave Policies Change Leave Taking Norms? Evidence from Immigrants

2.1 Introduction

Women's choices regarding work and childcare vary remarkably even among mothers facing similar labor market conditions and institutions. Views regarding the appropriate role of women in society and whether specific behaviors are interpreted as signals of a woman's devotion to her child or career can vary dramatically depending on context. This chapter considers the role of public policies in shaping social norms focusing on whether changes in maternal leave policies lead to changes in leave-taking behaviors at least partially through changes in norms.

Researchers and policymakers have long been interested in how social interactions impact the take-up of government social programs. Peers can influence take-up by sharing practical information about policies, but they can also support or stigmatize take-up via social norms. Social interactions can thus yield long run impacts of policies that are quite different from short run impacts. A new maternal leave policy with relatively low initial take-up can have very high long run take-up rates if, as more people take leaves, taking longer leaves is no longer interpreted as a signal of lack of career dedication.

It is generally challenging to distinguish between the direct and indirect effects of policies. One technique that has been used by researchers to separate the effects of culture from the effects of economic conditions and institutions is to study the behaviors of immigrants and their offspring (e.g. Fernandez and Fogli 2009). When migrants move to a new country, they are subject to the host country's laws and economic conditions but may bring with them their home country's culture and social norms. These norms are often transmitted to their children and are sustained, perhaps even strengthened, within ethnic communities.

Our paper examines the relationship between policies and norms by considering whether immigrants from countries with more generous parental leave policies take more leave after the birth of a child in the United States. An increase in mandated weeks of leave in a person's home country would directly decrease the costs of taking more leave for people in the home country. As more women in that country take longer leaves, what it means to be a "good mother" may evolve to include more time away

from the workplace after giving birth. At the same time, longer leave-taking may no longer be interpreted as a signal of lack of dedication to a person's job or career. While immigrants in the U.S. will not be directly affected by the policy's decreased costs of taking more leave, their views about what it means to be a dedicated mother and worker can be affected by the home country policy change. Thus, because immigrants are not eligible for the leave-taking provisions in their home countries and specific information about these laws is not relevant for them, any causal impact of home country parental leave policies on immigrants' leave-taking behaviors might be interpreted as evidence of the importance of culture and norms in determining leave-taking behaviors.

There is a growing literature exploring the role of culture in explaining many different family-related outcomes by studying immigrants and their offspring. Using this epidemiological approach, researchers have found that norms influence female labor force participation rates (Fernandez and Fogli 2009), fertility rates (Fernandez and Fogli 2009), divorce decisions (Furtado et al. 2013), living arrangements (Giuliano, 2007), participation in the stock market (Osili and Paulson 2008), and the decision to take out a large mortgage (Rodrigues-Planas 2018), among other things. To our knowledge, ours is the first paper to link specific home country policies, as opposed to home country behaviors, to the behaviors of immigrants in the United States.

While a relationship between home country policies and immigrant behaviors might be interpreted as evidence of the importance of norms, it is difficult to determine whether the policies themselves change norms or whether home countries with stronger leave-taking norms enact more generous leave-taking policies. Our main contribution to the literature is to examine whether *changes* in policies are associated with *changes* in norms. To assess whether a policy change might yield cultural change, we exploit variation in the magnitude and timing of changes in the number of weeks of leave available to new mothers in an immigrant's home country in conjunction with variation in the immigrant's year of migration, or in some cases—year of childbirth. Imagine, for example, that a country with no paid leave policy enacts a policy in 2011 granting leave. If policy changes precede cultural changes, then we may expect immigrants with more exposure to the policy—namely, those leaving the country after 2011—to take more leave than immigrants

from the same country who arrived in the U.S. long before 2011. Immigrants from the same country of origin would have similar baseline values regarding working mothers and neither would be directly affected by the policy change, but the two groups would have different levels of cultural exposure to the home country policy. Because year of arrival differs across immigrants from the same country of origin, and different countries changed their leave policies in different years and by different amounts, we are able to use this basic strategy while controlling for year of arrival to the U.S. and year of giving birth.

Our primary source of data is the 1980, 1990, and 2000 US Census 5-percent Public Use Microdata files along with the 2003-2006 and 2010-2013 waves of the American Community Survey (ACS) all of which were obtained from the Integrated Public Use Microdata Series (IPUMS) (Ruggles et al. 2015). The sample is limited to foreign born women who are either working or absent from work (but employed) and whose youngest child is under the age of 1. Information on the total duration of paid leave available (from both maternity and parental leave) in the home country by year is available for the years 1970 to 2013 for 28 countries from the OECD Gender Data Portal. For our primary specifications, we merge these country-year level data with our individual-level Census and ACS data by country of origin and year of migration so that for each foreign born new mother in our sample, we can determine how many weeks of paid leave were available to mothers in her home country in the year before she migrated to the United States.

Our first set of results confirm that foreign born new mothers are more likely to be on maternity leave within the year after giving birth if they are from countries offering more generous leave policies than if they are from countries with fewer weeks of mandated leave. We next add country of origin fixed effects to the model in order to account for any shared characteristics, including culture, of immigrants from the same country that stays constant over time. Results with country of origin fixed effects suggest that as the total duration of paid parental leave available in the country of origin increases by one week in the year prior to migration, the probability of being on maternity leave within the first year post-childbirth increases by 0.11 percentage points. These results predict that there is an 18 percentage point difference in the likelihood of being on leave between immigrants coming from Slovakia, which has the longest average

duration of paid leave weeks and those from Australia, which has the shortest duration. Tests for robustness suggest that these results are not driven by any particular country.

There are two main challenges in interpreting these results. The first, like in any other empirical paper, is to show that we are identifying causal impacts. While we control for several individual and home country level characteristics, it remains possible that foreign born women arriving from the same country at approximately the same time share unobservable characteristics that lead them to make similar leave decisions in a way that happens to be correlated with, but not caused by, home country maternity leave policy. The second challenge stems from the fact that policies can change in response to changes in cultural attitudes. If the changes in home country policies are purely the result, as opposed to a cause, of changes in norms, then while our findings could still be interpreted as evidence that culture matters for leave-taking decisions, they could not be used as evidence that policy changes culture.

While these are two distinct difficulties, the steps we take to show that we are identifying causal impacts of the policy, as opposed to home country norms, should also alleviate concerns about identification more generally. First, we add controls for home country level variables such as GDP, fertility, and female labor force participation rates to the model and our main estimates remain the same. Second, we conduct a series of placebo regressions aimed determining whether we are actually identifying the impact of a policy change as opposed to a more general impact of changing norms regarding work decisions for mothers. Our placebo regressions suggest that home country leave policies have no impact on the likelihood that mothers of older children were absent from work in the previous week. Non-mothers' absence rates were also not impacted by home country leave policies, and mothers of infants were not more likely to be laid off if they were from countries with more generous leave policies. All of these results suggest that our estimates of interest are not driven by preferences for leisure or productivity in the workplace.

In the latter part of the paper, we turn to an examination of how norms influence behaviors, specifically whose norms matter and how home country norms are transmitted to immigrants living in the United States. We show that in couples with two foreign born parents, mother's home country parental

leave policies are more important for determining mother's leave-taking in the US than the father's home country policies.

Finally, we explore how these norms regarding leave-taking are sustained over time and space. In the first part of the paper, we implicitly assume that immigrants are exposed to home country norms before migrating to the U.S., but then after arriving, lose at least some of their connections to the home country. For this reason, we measure home country mandated leaves in the year before migration and link that measure to all women from the same country migrating in the same year regardless of when they give birth. Another possibility, however, especially given the proliferation of social media and relatively low costs of international travel and communication in recent years, is that immigrants remain tightly connected to norms in their home country many years after migration. If this is the case, then we might expect that home country policies in the year before giving birth matter more for leave-taking behaviors of immigrants than home country policies in the year before migration. To examine this question, we start by including both variables in the same regression. We find that leave policies at the time of migration in general are more influential in leave-taking decisions. However, after splitting the sample based on whether foreign born mothers gave birth before or after the year 2000, when social media started to proliferate, we show that in recent years, mothers are more the norms associated with the current day policies while mothers in 1980 and 1990 were more influenced by policies in place in their home countries in the year before they migrated.

The remainder of the paper is organized as follows. In the next section, background on parental leave policies in the U.S. and across the world is provided along with a review of the literatures on social norms as well as on parental leave taking. In Section 3, we present the data and descriptive statistics. This is followed in Section 4 with a discussion of our empirical strategies. Our baseline results are shown in Section 5. Section 6 presents tests of robustness, checks for heterogeneity, and our analyses of how home country norms affect immigrant behaviors. Conclusions are provided in Section 7.

2.2 Background and Related Literature

2.2.1 The Impact of Culture and Norms on Behaviors

A growing body of work aims to understand the effect of culture on economic outcomes. Culture can be understood as a set of beliefs and values that are common among ethnic, religious, or social groups, and are passed down from one generation to the next (Guiso et al. 2006), but it is difficult to measure in general and perhaps even more difficult to separate the impact of culture from the impacts of economic conditions and institutions.

To isolate the impact of culture, researchers typically examine whether the behaviors of immigrants vary systematically with the behaviors of people in their home countries. Immigrants live and work within the labor markets and institutional structures of their host countries, but their beliefs and values often reflect their origin cultures. While they cannot bring with them the economies and laws of their home countries, they do bring with them home-country norms and often transmit these informal rules of behavior to their native-born children. Thus, immigrants living in the same host country, and so subject to the same economic conditions and institutions, can behave very differently if they come from different home countries and so have different cultures.

Fernandez and Fogli (2009) show that second generation immigrant women are more likely to participate in the labor market and have higher fertility rates if female labor force participation rates and fertility rates are higher in their origin countries, a result indicative of the role of culture in determining labor supply and childbearing decisions. Similar approaches have been used to uncover the impact of norms on living arrangements (Giuliano 2007), participation in the stock market (Osili and Paulson 2008), son preference (Almond, Edlund, and Milligan 2013), divorce tendencies (Furtado et al. 2013), smoking (Christopoulou and Lillard 2015), gender gaps in math achievement (Nollenberger et al. 2016), having a mortgage (Rodríguez-Planas 2018), and even the likelihood of parking illegally on New York City streets (Fisman and Miguel 2007).

Our paper contributes to this growing literature by examining how culture impacts a different outcome, parental leave-taking decisions. Given our ultimate interest in determining whether policies can change norms, we differ from the bulk of the literature in that instead of examining the effect of home

country behaviors on the same behavior among immigrants, we consider the relationship between home country policies and behaviors of immigrants. In a similar vein, Okonkwo, Osili, and Paulson (2008) show that home country policies regarding the protection of private investment from expropriation increase the likelihood that immigrants in the U.S. participate in the stock market. Their results suggest that laws and institutions can have impacts on beliefs and preferences even for individuals who are no longer subject to those laws and institutions. By examining the impact of mandated weeks of leave available to women in home countries on leave-taking behaviors of immigrants in the U.S, we can examine how home country policies can change general perceptions regarding the virtue of a particular behavior, leave-taking, as opposed to beliefs about the ability of institutions to provide protection against risk.

Our main contribution to the norms literature, however, is in examining how a change in policy may result in changes in norms. Despite the fact that culture is known to evolve in response to globalization, technological change, and socioeconomic development (Inglehart and Weizel 2005), most of the literature tests for the impact of culture using measures of culture that do not change over time. There are a few exceptions. Guiliano (2007) uses two cohorts of second generation immigrants in the U.S. to explore the relationship between home country norms regarding family living arrangements and whether adult second generation immigrants live with their parents. Christopoulou and Lillard (2015) show that variation in smoking in the United Kingdom by cohort can predict smoking behaviors of immigrants from the UK in the Australia and the U.S., a result suggesting not only that culture matters for smoking, but also that smoking culture changes over time. In addition to examining a different outcome, our paper builds on this work by explicitly linking home country *policy* changes to changes in *behaviors* in a host country.

2.2.2 Parental Leave in the US and Abroad

Currently, every OECD country with the exception of the U.S. offers between 14 and 20 weeks of maternity leave with wage replacements ranging from 70 to 100 percent (Ruhm 2011). Most countries also offer some form of paid paternity leave, most ranging from 2 days to 2 weeks (Ray 2008). In addition to explicit maternity and paternity leaves, countries also often offer a period of parental leave, which can be taken by

either parent. These leaves are often at least partially paid. In contrast, the primary source of parental leave in the US is the Family Medical Leave Act (FMLA). Passed by Congress in 1993, the FMLA grants twelve weeks of unpaid, job protected leave a year to employees who meet certain criteria.¹³ California, Hawaii, New Jersey, New York and Rhode Island currently offer paid leave through their temporary disability programs while California, New Jersey, and Rhode Island have explicit paid family leave policies. Other states do not have paid leave policies and new mothers must rely on employers to provide paid leave. According to a 2012 survey, 25 percent of working mothers return to work within two weeks of giving birth (Lerner 2015). As U.S. policymakers at the state and federal level grapple with establishing new parental leave policies, it is important to consider the benefits of more generous leave policies to parents and children as well as the costs to employers and taxpayers.

Several papers exploiting variation in leave-taking policies across countries and time show that more generous leave policies lead to decreases in child mortality (Ruhm 2000, Tomaha 2005). Despite this evidence, extended leaves do not always result in clear benefits for mothers and children. Exploiting a policy change in Canada that extended leave duration from 6 months to 12 at the end of the year 2000, Baker and Milligan (2008) find increases in leave duration and increases breastfeeding but were unable to detect meaningful improvements in child health up until age 3. In a companion paper, these authors showed that the policy did decrease mothers' labor market hours in the first year of children's lives but this had only a weak impact on child development. Dustmann and Schonberg (2012) show that although policy in Germany led to large decreases in the speed at which mothers returned to work, it did not have any long term impacts on children's cognitive abilities. Bana, Bedard, and Rosin-Slater (2017) fail to find any evidence that increases in weekly benefits increase leave durations or worsen labor market outcomes.

Beyond health and well-being of children and mothers, another common goal of leave policies is to strengthen labor force attachment of women. From a theoretical perspective, more generous leave

¹³ In order to be eligible for leave, employees must have worked at least 1,250 hours in the previous 12 months and work at a firm with 50 employees or more. Due to these eligibility constraints, only around half of private sector employees are able to take advantage of leave through the FMLA.

policies can make it possible for mothers to care for their children in those critical first months of the child's life without having to exit the labor force entirely. On the other hand, more generous leave policies, especially when not accompanied by father leave quotas, may result in discrimination against women of childbearing age. Especially long leaves may make it difficult for women to return to the labor force at all.

Several researchers have empirically examined the relationship between more generous leave policies and labor market outcomes of women. In the US, researchers have found increased take up rates and longer leave lengths with the implementation of both unpaid and paid leaves (Han et al. 2009, Rossin-Slater et al. 2013, Bartel et al. 2015), and no negative wage or employment effects for unpaid leaves (Waldfogel 1999). A series of reforms in Austria did not produce any harmful effects on employment or earnings for women in the long run, although the extension of leave length increased the number of women who never return to work (Lalive and Zweimuller 2009). Similar results on long run labor force attachment also appear when examining a series of German parental leave policy changes (Schonberg and Ludstek 2014).

We might conclude from this literature that although there are children and parents that benefit quite substantially from more generous leave policies, there is variation in the impacts of these policies perhaps depending on the length of leave, whether the leave is paid or job-protected, and who is most likely to take additional leave as a result of the policy changes. As policymakers evaluate the likely costs and benefits of any new leave policy, it is important to consider the determinants of take-up of the policy in general but particularly the role that social interactions might play in take-up decisions since, as discussed in the previous section, long-term take-up rates may differ quite substantially from short-term take-up rates in contexts where information sharing and norms are influential.¹⁴

Several studies have found that peer effects do indeed matter for leave-taking decisions. Dahl et al (2014) first examine peer effects in the context of paid paternity leave in Norway. Using a fuzzy regression

¹⁴ Despite the implementation of the FMLA and the more generous state-level policies, there has been no increase in leave-rates among mothers in the past twenty years (Zagansky 2017). Although leave rates among fathers have increased three fold since the mid-1990s, even today, very few fathers take more than a couple of weeks of leave after a child is born (Zagansky 2017).

discontinuity approach, they find a large increase in the number of fathers taking paternity leave after a program reform, and then use this increased take-up to determine how it changed the behavior of coworkers and brothers. Not only do they find strong peer effects for within workplace and familial networks, but these effects are amplified over time within the firm. More recently, Weltcke and Wrohlich (2016) use the same technique to examine the peer effects associated with a 2007 reform to the German leave policy. Their results show that maternal decisions regarding leave length are heavily influenced by the decisions of their coworkers. In both studies, the authors conclude that the main channel behind these peer effects is the transmission of information about the costs and benefits of leave, perhaps especially about how specific employers will react to leave-taking. Our study contributes to the literature of indirect effects of a policy change by considering the impacts of changes in many different policies on a population that is not subject to these policies. In doing so, we are able to isolate the impacts of these policies on changes in norms about leave-taking in general as opposed to information sharing about the details of any particular policy.

By comparing labor supply and fertility rates of women born into the French and German language regions at the language border in Switzerland, Steinhauer (2018) documents that German-born women are substantially less likely to be employed as mothers of young children and more likely to have remained childless compared to their French counterparts on the other side of the border. Since women on both sides of border are subject to the same laws and labor markets, Steinhauer (2018) attributes these differences to the cultural beliefs about whether mothers have an obligation not to work while raising children. Most similar in spirit to our paper, Mussino, Tervola, and Duvander (2018) consider paternity leaves among fathers in Finland and Sweden, countries with similar economies but different paternity leave policies. The authors attribute differences in paternity-leave take-up among fathers born in the same country but exposed to different paternity-leave policies due to migration to the role of policy. They attribute differences among immigrant fathers who migrated at different ages or who are married to spouses of different origins to the role of culture. Their results suggest that although norms matter for leave-taking, they are less important than policy design. We contribute to this work by considering leave-taking among immigrants from several

different countries, instead of just one other country. We also examine how changes in policies can change norms even among parents who are not themselves subject to these policies.

2.3 Data

The data for this study comes from the 1980, 1990, and 2000 Census, as well as the 2000, 2003-2006 and 2010-2013 waves of the American Community Survey (ACS).¹⁵ The sample is limited to foreign born women aged 16 to 65 who are currently employed, whose children were all born in the US, and their youngest child is under the age of 1. These women were most likely exposed to parental leave policies in their home countries, but did not experience them firsthand for any of their children.

The Census and ACS do not specifically ask respondents if they are taking parental leave, but they do ask if they are temporarily absent from work in the week prior to the survey. Following Bartel et al. (2015), we use whether the woman has reported being temporarily absent for reasons other than a layoff as the dependent variable. Examples of such temporary leaves listed in the survey include parental leave, illness, or vacation. Since the sample is limited to women with an infant in the household, the leave is most likely to be parental leave.

The independent variable of interest is the total length of paid leave available in the country of origin in the year prior to migrating to the US. The data on total length of paid leave by year is available through the OECD Gender Data Portal. We use the total duration of paid leave variable, which lists the number of weeks of paid leave (both from maternity leave and parental leave) for which mothers are eligible after childbirth. The data is available from 1970 to 2014 for 28 countries.¹⁶

Table 2.1 presents summary statistics of the variables relevant to the study by country of origin. The first column shows the average length of leave (in weeks) in each country of origin in the year before

¹⁵ The data was downloaded from the Integrated Public Use Microdata Series (IPUMS) database (Ruggles et al, 2015). The analysis uses the 5% Census samples, the 0.13% ACS sample for 2000, and the 1% ACS samples beginning in 2005. The 2003 and 2004 ACS samples capture 0.42% of the population.

¹⁶ The 28 countries are as follows: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary (beginning in 1985), Iceland, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, and the United Kingdom (England, Scotland, Wales and “United Kingdom, country not specified).

migration for the immigrants in our sample. This ranges from 161 weeks in Hungary to 0 weeks in Australia (Australia's paid leave policy was just passed in 2011). The second column shows the proportion of immigrants who take parental leave in the US, which varies greatly among countries. For example, Austrian immigrants have the fifth longest average duration of paid parental leave in the sample but only 11% take leave in the US, whereas 40% of Swiss immigrants take leave even though they have the second shortest average duration of paid leave in the sample. These discrepancies suggest that home country policies are certainly not the main determinant of leave-taking among immigrants in the U.S., but they may still play a certain role especially after controlling for other characteristics of these immigrants. For this reason, we turn to regression analysis.

2.4 Empirical Strategy

To identify how country parental leave policies influence immigrant women's leave taking behavior in the US, we start by estimating the following linear probability model:

$$A_{ijmt} = \beta_1 L_{jm-1} + \beta_2 \mathbf{X}_{ijmt} + \gamma_m + \gamma_s + \gamma_t + u_{ijmt}$$

for individual i , from country of origin j , who migrated to the US in year m and was surveyed in year t . The dependent variable, A , is a dummy variable equal to one if a woman reports being absent from work for reasons other than a temporary layoff (which includes parental leave, illness, or vacation) during the reference week. The main right hand side variable of interest, L , is the total duration of paid parental leave available in the new mother's country of origin in the year prior to migrating to the US. If the cultural norms associated with home country parental leave policies are important and immigrants carry them over to the US when they migrate, the coefficient on this variable will be positive. The vector \mathbf{X} contains controls for individual characteristics such as marital status, household income, age, educational attainment, race and ethnicity, English language ability, years spent in the US, and occupation.

The occupation fixed effects are particularly important because they account for heterogeneity by occupation in terms of the flexibility for taking leave. There is also variation by firm in terms of the availability of paid leave to workers. While we are not able to link workers to specific employers, to the

extent that more generous firms in terms of paid leave policies, like Google and Microsoft, are more likely to hire workers in certain occupations, we can explore how sensitive our results are to controlling for occupation fixed effects. We note, however, that occupation choice may be a mechanism through which immigrants with strong leave taking norms end up with longer leaves: they sort into occupations where leave-taking is more accepted. In models controlling for occupation, we are not allowing norms to operate in this way.¹⁷

Our baseline specification also controls for year by state fixed effects. While all states must adhere to the FMLA, several states offer more generous benefits than the legislation requires. This may include extending benefits to smaller firms (only firms with more than 50 workers are subject to FMLA), relaxing work eligibility requirements, or extending the duration of unpaid leave. Starting in 2004, residents of California became eligible for paid leave. If it is the case that immigrant women with more generous home country parental leave policies tend to live, by coincidence, in states which provide more generous leave benefits, then failing to control for states may overstate the effect of norms on leave taking behavior in the US. We include state fixed effects, γ_s , to control for state-level policies as well as industrial structures and U.S. norms. All models also include year of migration fixed effects, γ_m , to account for the fact that, for example, women migrating to the US in the 1980s may be different from women migrating in the 2000s in ways that generate differences leave-taking behaviors. All models also include year fixed effects, γ_t , to control for changes over time in the likelihood of taking leave.

Studies utilizing the epidemiological approach caution that this technique tends to bias the results towards finding that culture does not matter (Fernandez, 2010). For example, immigrants may not be representative of the people of their home countries. Their decision to migrate to the U.S. may be a result of associating more with the norms and culture of the U.S. than with the social conventions in their home countries. Moreover, even if they are representative of their home countries at the time they migrated, they are likely to have assimilated to the norms of the U.S. with time. Both of these two scenarios would make

¹⁷ Occupation fixed effects are created using the 2010 ACS occupation classification scheme and aggregating the individual occupations into broader categories.

it more difficult for us to detect an impact of norms on leave-taking even if norms do in act play an important role.

The main innovation of our study is its inclusion of country of origin fixed effects:

$$A_{ijmt} = \beta_0 + \beta_1 L_{jm-1} + \beta_2 X_{ijmt} + \gamma_m + \gamma_s + \gamma_t + \gamma_j + u_{ijmt}$$

The fixed effects control for any unobservable characteristic, including but not limited to norms regarding leave-taking that stay constant over time, which may be correlated with home country leave policies and leave taking in the US. In models with country of origin fixed effects, identification comes from variation in in the year of migration of the immigrants in conjunction with variation in the timing of policy implementation in home countries. For example, Austria, one of the first countries in Europe to implement a maternity leave policy, extended leave from 60 weeks to 112 weeks in 1990 but later reduced leave duration from 112 to 86 weeks in 1996. Thus, women who left Austria between 1990 and 1996 may find it more important, on average, to take time away from the labor force after giving birth than women who migrated after 1996 or especially compared to those who migrated before 1990. In contrast, because Australia implemented its first paid leave policy in 2011, if policies change norms, then we would expect Australians migrating after 2011 to take more leave than those migrating before that year.

Our identifying assumption is that conditional on the covariates included in our model, the timing of policy changes and years of migration can be thought of as exogenous to leave-taking behaviors of immigrants in the United States. Several other papers (Ruhm 2000, Tomaha 2005) have estimated plausibly causal impacts of changes in leave policies by exploiting country-year variation in the timing of leave policies. Our paper takes this approach one step further by combining the variation with the timing of policies in different countries with the timing of migration from different countries. We perform several robustness checks and tests for heterogeneity which will provide support for identifying assumptions.

2.5 Results

2.5.1 Baseline

Table 2.2 presents results for the baseline model. All specifications include the full set of controls as well as occupation fixed effects. Each column gradually adds more fixed effects to the model, ending with the preferred specification in the final column. The coefficient estimate on home country paid leave is fairly stable when survey year, state, and migration year fixed effects are added to the model, but it increases when country of origin fixed effects enter the model.

The coefficient estimate on home country paid leave is positive and highly significant in the last column of Table 2.2, indicating that a one week increase in the duration of paid parental leave in the year prior to migrating to the US increases the likelihood of taking leave in the US by 0.11 percentage points. While the magnitude of this coefficient is small, it is important to note that these home country policies are no longer binding once migrants come to the US, and we interpret the significant coefficient as evidence of parental leave norms influencing leave taking behavior in the US. Additionally, when comparing countries that have the shortest and longest duration of leave in the sample (0 weeks for Australia and 164 weeks for Slovakia), there is an 18 percentage point difference in the likelihood of taking leave.

Table 2.3 checks to see if the results are robust to the use of different samples. The first column drops immigrants from Mexico, since they are the largest group in the sample and may be driving the results. Column 2 drops Hungary from the sample since they have the largest average duration of paid leave in the sample, and the next column drops Australia, which has the shortest average duration of paid leave. The results from these specification checks are nearly identical to the baseline specification, and therefore we conclude the results are not driven solely by a particular country.

A potential concern with the analysis is that the timing of home country leave policies are correlated with other time-variant home country characteristics that may be driving our results. While it is impossible to control for all home-country characteristics, we can assess how sensitive our baseline results are to the inclusion of several controls for home country variables that may be of particular concern for our analysis.¹⁸

¹⁸ The additional home country variables (total fertility rate, female labor force participation, and GDP per capita) come from two sources – World Bank data and OECD statistics. The female labor force participation rate is missing for many countries prior to 1990 and so the sample is limited to individuals for which all additional home country variables are non-missing. The first column of Table 2.4 reproduces the baseline result with this smaller sample, and

As a first example, if home country gender norms are changing over time to become more family-centric and less career-oriented, then we may expect expansions in leave-duration as well as increased likelihoods that immigrants in the U.S. take more leave, even if the change in policy itself has no causal impact on norms. To address this concern, we note that if countries were indeed becoming more family-oriented, then we may expect fertility rates to increase. While home country fertility rates should not be used as a sole measure of family-orientation, it is informative to see if our estimated coefficient of interest drops substantially in magnitude when a control for home country fertility rates (a potential measure of family orientation of a country), in the year prior to migration, is added to the model. As shown in column 2 of Table 2.4, the addition of this variable barely changes the estimated coefficient of interest. Another potential measure of increased family orientation relative to career orientation for women is the home country labor force participation rate. The third column of Table 2.4 adds female labor force participation rates to the model, again in the year prior to the immigrant's migration to the US. Results show that this addition has no effect on leave taking in the US and the coefficient estimate of parental leave norms remains unchanged.

Another potential driver of increased leave policies, specifically paid-leave policies, is whether countries can afford to pay workers while they are at home with their newborns. Richer countries may be more likely to have generous leave policies. At the same time, immigrants from rich countries may only come to the U.S. if they are offered particularly high salaries, and women with high salaries, or even more so women whose husbands earn high salaries, may be more likely to afford extended leaves in the U.S., specifically because extended leaves in the U.S. are typically unpaid. The fourth column of Table 2.4 adds GDP per capita in the home country in the year prior to migration to the model as a proxy for home country household income. The addition of this control does not seem to have a large impact on our estimate of the

results remain similar to the full sample. The drastic decrease in sample size is mainly due to missing female LFP data from 1970 to 1990 for Mexico, which is the largest immigrant group in the sample. Further investigation needs to be done in order to recover the missing data.

effect of home country norms. The last column of Table 2.5 adds all three home country variables to the model and results do not appear much different than those presented in the baseline model.

2.5.2 Placebo Regressions

We now turn an examination of whether home country leave policies specifically affect leave-taking behaviors of immigrants in the United States or whether changes in these policies happen to be correlated with other family or work related norms of the immigrants. As a first example, if migrants from countries with more generous parental leave policies are less attached to the labor force in general, for reasons unrelated to parental leave, they may be more likely to be absent from the workforce for a variety of reasons. If instead, the baseline estimates are measuring indirect effects of home country *parental* leave taking policies, then only immigrant women with young children should be impacted by home country parental leave policies. The first two panels of Table 2.5 examine leave taking behavior of women who should not be influenced by the norms associated with home country leave policies – women with older children and women with no children at all. The impact of home country paid weeks of leave is practically zero and certainly statistically insignificant in both regressions.

Next, we examine whether home country leave policies are related to layoffs. For this regression, only the 1980, 1990, and 2000 Census data because only these surveys ask whether people who are temporarily absent from work in the previous week are absent because of a layoff. Again, there should not be a significant effect of home country policies on the likelihood of being laid off if they are indeed changing parental leave norms, and the results in panel 3 of Table 2.5 show no effect.

2.5.3 Tests for Heterogeneity

When examining leave taking behavior in the US after the introduction of the FMLA, studies have shown married women and college educated women are more likely to take leave than their respective counterparts (Han et al, 2009). Rossin-Slater et al (2013) analyze the effects of the California Paid Family Leave policy and, although their sample size is smaller when they split the sample, results suggest paid leave increases the likelihood that unmarried mothers or non-college educated mothers take leave. In Appendix Table A2.2, we split the sample by marital status and by education to determine if the norms associated with parental

leave have differential effects by these subgroups. In both instances, the coefficient estimate on the length of home country paid parental leave is very similar to the baseline regression results, indicating that these norms have the same effects for all women, regardless of marital status or educational attainment.

While there are no differential effects of home country norms on leave taking by maternal characteristics, there is some heterogeneity in leave taking depending on the child's birth order and gender. The first panel of Appendix Table A2.3 shows norms associated with home country parental leave increase the likelihood of taking leave after the birth of the first or second child, but not for the third child or higher birth. The second panel of Appendix Table A2.3 splits the sample by gender of the child. Home country parental leave norms appear to increase the likelihood of taking leave for mothers of daughters and sons, but the estimated effect is much larger for daughters than sons.

2.6 Who Makes Work-Care Decisions?

While the main aim of our paper is to examine whether policies change norms, we can use our analysis to gain some insight on how decisions about childcare and mother's employment are made within families. While it is generally not possible to measure individual preferences for different types of care arrangements in nationally representative data sets, we can often assign different norms to husband and wife in immigrant couples when husbands and wives come from different countries or from the same country in different years.

To study the impact of the wife's and husband's leave taking norms on wives' leave taking in the US, we include measures of the total duration of paid leave in the year prior to migration for both the husband and the wife in the same regression. Table 2.6 reports the regression results with separate controls for the husband's and wife's home country paid leave duration. The sample used in these regressions is limited to households where both husband and wife are foreign born. The first column of Table 2.6 simply adds the husband's leave duration to the baseline model. The next two columns add individual husband controls – education and English language ability – and the final column includes all husband level controls. In each specification, the coefficient estimate on the wife's home country paid leave is positive and

significant, while the estimate on the husband's paid leave duration is statistically insignificant and even negative. These results indicate that the leave taking norms associated with the wife are more influential in taking leave in the US than the husband's norms.

2.7 Changes in Social Connections over Time

As discussed previously, there is no clear choice for when to measure home country parental leave policies. Measuring leave policies years before migration will allow migrants enough time to be exposed to any policy-induced changes in norms before migrating to the United States. At the other extreme, if immigrants in the U.S. continue to have close social contact with people in their home countries, then home country maternity leave policies in the year prior to giving birth, as opposed to migrating, may be what is most relevant for determining leave-taking for the immigrants in the United States.

As shown in Appendix Table A2.1, home country leave policies in the year prior to migration seem to be the most influential on average, but over time there has been a change in how migrants connect with family and friends in their home countries. The emergence of numerous social media platforms and their growing influence in today's society allows individuals from all over the world to connect with one another. This greatly reduces the cost of staying in touch with peer and familial networks back home for immigrants and can change the norms that influence their leave taking behavior in the US. For example, immigrants coming to the US in the 1970s or 1980s did not have as many opportunities to remain connected with friends and family back home and thus may still associate with the home country norms at the time they migrated. With the introduction and popularity of social media sites and smartphone applications, more recent generations of immigrants have more readily available options to remain in touch with those back home and thus be more informed about current day norms in their home countries.

To test whether current day policies are having relatively stronger impacts in more recent years, potentially as a result of the expansion of social media sites, we control for two parental leave length durations: (1) the duration of paid leave available in the year prior to migrating to the US and (2) the duration of paid leave available in the year in which the respondent was surveyed. We also split the sample based

on when the immigrant came to the US. If in recent years, people are more sensitive to current day home country leave policies, we should see that immigrants arriving more recently should be more affected by the survey year policies whereas immigrants arriving many years before internet expansion should be more sensitive to leave policies in the year prior to migration.

Results presented in Table 2.7 confirm this prediction. Migrants arriving before 1996 are driven by the norms associated with parental leave in the year prior to migration. The coefficient estimate for the policy duration in the survey year is insignificant. For those arriving in the US after 1996, the opposite is true. Norms are associated with parental leave in the year prior to migration have no effect on their leave taking behavior in the US, whereas the survey year policy norms have a positive and highly significant effect.¹⁹

2.8 Conclusion

When countries expand the number of weeks that parents can take off from work while continuing to get paid at least some fraction of their pre-leave salaries, the direct costs of taking additional leave decrease and so more people take more leave. At the same time, because these country-wide policies can increase leave-taking for a large fraction of the population, they may also affect norms regarding leave-taking after giving birth. In a country like the United States with no federal paid leave taking policy, a new mother who is on maternity leave for several months after giving birth may be perceived as less dedicated to her career than a mother in Canada, a country with a very generous paid maternity policy, who takes the same leave. At the same time, the U.S. mother who takes only a few months of leave after birth would still be perceived as a dedicated mother while a mother in Canada who takes less than a year of leave may not be.

In general, it is very difficult to distinguish the direct effects of policy changes from the indirect effects via changing norms. This chapter attempts to separate the direct effects of paid parental leave policies from the indirect effects by examining leave-taking behaviors among immigrants in the United

¹⁹ While this specification splits migrants based on their arrival before or after 1996, results are very similar when they are split based on migrating before or after 2001.

States. The mothers in our sample are subject to US laws and institutions and so home country policies should not have any direct impacts on behaviors. However, because immigrants typically bring their home country norms with them, home country policy-induced changes in norms can still affect their leave-taking behaviors in the United States.

Our results indicate that the norms associated with leave taking in the home country are important for explaining the parental leave taking behavior of immigrants in the US. An increase in paid leave in the home country increases the likelihood of taking leave in the US by 0.11 percentage points. This result is robust to the inclusion of several other home country characteristics as controls in our models. We also present evidence suggesting that maternity leave policies have causal impacts on leave-taking norms; it does not appear to be the case that home country leave policies are associated with other types of work leaves among immigrants in the United States.

We also show that women appear to be more influential than their husbands in making decisions about leave taking. Among couples where husband and wife come from different countries or come from the same country in different years, it is the weeks of home country paid leave duration in the year before migration of the wife that matters and not the husband that matters.

We end our analysis of leave-taking norms by examining changes in how norms are transmitted and sustained through the years. Years ago, immigrants would have brought their home country norms with them but while these home country norms may have depreciated as immigrants assimilated to U.S. culture, they would not have changed in response to home country changes in policy post-migration. In contrast, expansions in social media may have allowed for close contact among people living in different countries and so changes in home country norms may spill over to immigrants who have been living in the United States for many years. Consistent with this hypothesis, we find that in models with home country leave policies measured in both the year before migration and the year before childbirth, it is the policy in place in the year before migration that mattered more for immigrants who migrated before 1996 while it is the policy in place before childbirth that matters more for immigrants who migrated after 1996.

These results have important implications for both the culture and policy evaluation literatures. This study finds that changes in policy can impact and change cultural norms. It is important to consider when changing or implementing a new policy because cultural norms can play a role in policy take up and potentially its evolution over time.

Table 2.1: Summary Statistics by Country of Origin

Country	Duration of Paid Leave	Absence	Age	Married	Less than High School	High School Degree	Some College	BA or Higher Degree	N
Hungary	160.76	0.31	32.41	0.91	0.00	0.07	0.42	0.52	25
Finland	156.28	0.20	34.14	1.00	0.00	0.02	0.06	0.93	18
Slovakia	149.92	0.40	34.97	1.00	0.00	0.26	0.21	0.53	10
Czech Republic	141.19	0.30	31.56	0.92	0.16	0.07	0.25	0.52	22
Austria	83.28	0.11	33.54	1.00	0.00	0.07	0.03	0.90	15
Sweden	53.63	0.21	33.07	0.93	0.02	0.03	0.21	0.75	45
Italy	45.57	0.06	32.50	0.89	0.07	0.22	0.30	0.41	151
Norway	45.44	0.12	33.87	0.86	0.03	0.04	0.21	0.71	26
Germany	40.15	0.14	28.80	0.73	0.03	0.16	0.38	0.43	660
Denmark	32.35	0.22	30.35	0.93	0.04	0.02	0.26	0.68	14
Japan	28.21	0.13	30.90	0.92	0.01	0.18	0.38	0.44	307
Canada	28.13	0.20	32.00	0.94	0.02	0.08	0.29	0.62	14
United Kingdom	27.25	0.16	32.24	0.85	0.02	0.12	0.25	0.61	674
France	18.62	0.23	33.02	0.98	0.01	0.03	0.17	0.79	123
Poland	16.47	0.22	31.41	0.92	0.01	0.17	0.35	0.47	288
Netherlands	15.77	0.32	34.05	0.84	0.01	0.05	0.30	0.63	104
Iceland	15.53	0.40	31.22	0.40	0.00	0.60	0.00	0.40	2
Belgium	15.18	0.22	30.94	0.86	0.04	0.04	0.30	0.63	277
Spain	14.77	0.14	32.48	0.89	0.02	0.06	0.17	0.75	26
Ireland	14.10	0.05	37.80	0.90	0.25	0.08	0.30	0.37	85
Greece	13.89	0.13	31.79	0.90	0.08	0.22	0.18	0.51	54
Portugal	13.12	0.17	30.64	0.93	0.23	0.19	0.15	0.43	146
Turkey	12.51	0.28	31.39	0.98	0.03	0.12	0.22	0.62	66
Mexico	11.60	0.14	28.86	0.68	0.44	0.29	0.18	0.09	7,109
Korea	3.38	0.13	32.96	0.93	0.03	0.09	0.20	0.68	628
New Zealand	0.89	0.11	32.78	1.00	0.00	0.11	0.05	0.84	20
Switzerland	0.37	0.40	34.41	0.90	0.00	0.08	0.07	0.84	23
Australia	0.00	0.18	32.91	1.00	0.03	0.14	0.20	0.62	67
Total	16.78 (18.68)	0.15 (0.36)	29.82 (5.83)	0.75 (0.43)	0.31 (0.46)	0.23 (0.42)	0.21 (0.41)	0.24 (0.43)	11,225

Table 2.1 (Cont)

Country	Household Income	Age at Arrival	Years in US	Does No Speak English	Speaks English, Not Well	Speaks English, Well	Speaks English, Very Well	N
Hungary	84,553	21.16	11.36	0.00	0.06	0.05	0.888662	25
Finland	99,391	25.89	8.29	0.00	0.00	0.00	1	18
Slovakia	106,417	21.74	13.23	0.00	0.00	0.00	1	10
Czech Republic	89,474	16.82	14.74	0.00	0.00	0.04	0.95873	22
Austria	109,256	15.91	18.11	0.00	0.00	0.26	0.739035	15
Sweden	149,096	18.61	15.31	0.00	0.00	0.03	0.974057	45
Italy	91,871	15.14	18.37	0.00	0.01	0.13	0.859534	151
Norway	126,105	24.35	9.58	0.00	0.00	0.07	0.928824	26
Germany	75,785	6.92	22.02	0.00	0.00	0.02	0.977183	660
Denmark	201,129	20.86	10.71	0.00	0.00	0.00	1	14
Japan	83,740	13.54	17.78	0.01	0.03	0.11	0.850905	307
Canada	117,606	19.03	13.30	0.00	0.00	0.02	0.979463	14
United Kingdom	119,120	15.39	17.52	0.00	0.00	0.01	0.99	674
France	120,666	20.51	12.79	0.00	0.00	0.08	0.924158	123
Poland	94,890	18.54	13.13	0.00	0.09	0.18	0.727196	288
Netherlands	137,741	21.93	12.48	0.00	0.00	0.04	0.964868	104
Iceland	62,565	16.35	14.87	0.00	0.00	0.00	1	2
Belgium	143,617	13.77	17.61	0.00	0.00	0.01	0.985002	277
Spain	123,349	15.67	17.51	0.00	0.03	0.04	0.929164	26
Ireland	123,142	26.91	11.09	0.25	0.00	0.00	0.747615	85
Greece	96,965	15.02	18.11	0.00	0.02	0.08	0.898267	54
Portugal	87,589	17.42	15.50	0.03	0.07	0.11	0.792832	146
Turkey	110,807	18.37	13.13	0.02	0.01	0.06	0.908499	66
Mexico	48,951	14.81	14.35	0.15	0.25	0.21	0.394063	7,109
Korea	111,435	13.40	20.89	0.02	0.07	0.22	0.691195	628
New Zealand	108,496	12.70	20.98	0.00	0.00	0.00	1	20
Switzerland	193,947	22.24	12.30	0.00	0.00	0.00	1	23
Australia	188,386	20.88	12.27	0.00	0.00	0.00	1	67
Total	67,817 (75,824)	14.96 (8.93)	15.24 (8.83)	0.10 (0.30)	0.17 (0.38)	0.16 (0.37)	0.56 (0.50)	11,225

Notes: Summary statistics weighted using person weights. Countries are ordered by paid leave weeks, defined as the total length of paid leave available (includes both maternity leave and parental leave) in the home country. This variable was gathered from the OECD Gender Data Portal (2016). The other summary statistics were calculated from the 5% Public Use Microdata Sample of the 1980, 1990, and 2000 Census and the 2003-2006 and 2010-2013 American Community Survey. The sample is limited to women who are currently employed with an infant in the household who migrated to the United States in 1970 or later. The United Kingdom includes England, Scotland, Wales, and "United Kingdom, country not specified."

Table 2.2 – Baseline Model

	(1)	(2)	(3)	(4)
Home Country Paid Leave	0.000759*** (0.000215)	0.000756*** (0.000223)	0.000666*** (0.000224)	0.00111*** (0.000203)
Fixed Effects				
Survey Year	Yes	Yes	Yes	Yes
State	No	Yes	Yes	Yes
Migration Year	No	No	Yes	Yes
Country of Origin	No	No	No	Yes
Controls	Yes	Yes	Yes	Yes
Observations	11,225	11,225	11,225	11,225
R-squared	0.026	0.044	0.051	0.060

Notes: Standard errors clustered by home country. Specifications are conditional on the immigrant mother being employed in the previous year and having an infant (child under the age of 1) in the household. The home country paid parental leave duration corresponds to the total length of paid leave available in the year prior to migrating to the US. Occupation fixed effects are included in all specifications.

*** p<0.01, ** p<0.05, * p<0.1

Table 2.3 – Sensitivity of Sample Selection

	(1) Drop Mexico	(2) Drop Hungary	(3) Drop Australia
Home Country Paid Leave	0.00105** (0.000410)	0.00111*** (0.000197)	0.00111*** (0.000202)
Observations	4,117	11,202	11,160
R-squared	0.108	0.059	0.061

Notes: Standard errors clustered by home country. Each model includes the full set of controls and occupation, survey year, state, migration year, and country of origin fixed effects.

*** p<0.01, ** p<0.05, * p<0.1

Table 2.4 – Additional Home Country Variables

	(1)	(2)	(3)	(4)	(5)
Home Country Paid Leave	0.00152*** (0.000497)	0.00109** (0.000492)	0.00121*** (0.000385)	0.00153*** (0.000487)	0.00100** (0.000405)
Home Country Total Fertility rate		0.0921*** (0.0265)			0.0767** (0.0296)
Home Country GDP Per Capita			3.59e-06** (1.36e-06)		1.87e-06 (1.44e-06)
Home Country Female Labor Force Part.				0.00141 (0.00230)	0.000370 (0.00217)
Observations	5,829	5,829	5,829	5,829	5,829
R-squared	0.074	0.075	0.075	0.074	0.075

Notes: Standard errors clustered by home country. Specifications are conditional on the immigrant mother being employed in the previous year and having an infant (child under the age of 1) in the household, and include a full set of both controls and fixed effects. Data on total fertility rate and GDP per capita was gathered from the World Bank. The same size falls due to missing data on female labor force participation.

*** p<0.01, ** p<0.05, * p<0.1

Table 2.5 – Placebo Regressions

Panel 1	
Dependent Variable: Absent	
Sample: Employed Women with Children age 5-17	
Home Country Paid Leave	-2.16e-05 (5.05e-05)
Observations	68,085
R-squared	0.010
Panel 2	
Dependent Variable: Absent	
Sample: Employed Women with No Children	
Home Country Paid Leave	-1.33e-05 (4.46e-05)
Observations	159,226
R-Squared	0.007
Panel 3	
Dependent Variable: Laid Off	
Sample: Employed Women with Infants	
Home Country Paid Leave	2.75e-06 (3.28e-06)
Observations	6,098
R-Squared	0.008

Notes: Standard errors clustered by home country. Each column contains the full set of controls as well as the full set of fixed effects. All specifications are conditional on the woman being employed. Panels 2 and 3 utilize all data in the analyses while Panel 3 uses 1980, 1990, and 2000 Census data. Only these three surveys off the response “Yes - Laid Off” to the question about being temporarily absent from work.

*** p<0.01, ** p<0.05, * p<0.1

Table 2.6 – His or Her Culture?

	(1) Baseline	(2) Husband Education Controls	(3) Husband Language Controls	(4) All Husband Controls
Wife Home Country	0.000928**	0.000962**	0.000909**	0.000933**
Paid Leave	(0.000365)	(0.000373)	(0.000351)	(0.000361)
Husband Home Country	-0.000787	-0.000806	-0.000710	-0.000710
Paid Leave	(0.000782)	(0.000772)	(0.000750)	(0.000743)
Observations	8,942	8,942	8,942	8,942
R-squared	0.085	0.086	0.088	0.089

Notes: Standard errors clustered by home country. Specifications are conditional on the immigrant mother being employed in the previous year and having an infant (child under the age of 1) in the household, and include a full set of both controls and fixed effects. The wife home country paid leave corresponds to the total length of paid leave available for a mother in the year prior to the wife's migration to the US. The husband's home county paid leave is the total duration of paid leave available to new mothers in the year prior to the husband's migration to the US.

*** p<0.01, ** p<0.05, * p<0.1

Table 2.7 – Social Connections and Culture over Time

	(1) Migrated Prior to 1996	(2) Migrated After 1996
Home Country Paid Leave	0.00115***	-0.000604
In Year Prior to Migration	(0.000270)	(0.00117)
Home Country Paid Leave	0.000210	0.00517***
In Survey Year	(0.000644)	(0.00118)
Observations	8,614	2,613
R-Squared	0.082	0.094

Notes: Standard errors clustered by home country. All specifications are conditional on the immigrant mother being employed and having an infant (child under the age of 1) in the household, and include the full set of both controls and fixed effects. This specification includes the total duration of paid leave in the home country in both the year prior to migrating to the US, as well as the duration available in the year in which respondents are surveyed (which can also be thought of as the current year policy for the respondents).

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table A2.1 – Additional Matching

	(1) 5 Yrs Prior to Migration	(2) 3 Yrs Prior to Migration	(3) 2 Yrs Prior to Migration	(4) 1 Year Prior to Migration	(5) Migration Year	(6) 5 Years Post Migration	(7) Survey Year	(8) 1 Year Post Survey Year
Home Country	0.00143*** (0.000283)	0.00103*** (0.000338)	0.000903*** (0.000273)	0.00111*** (0.000203)	0.000606** (0.000280)	-8.74e-05 (0.000446)	0.000978* (0.000524)	0.00134*** (0.000411)
Paid Leave								
Observations	9,890	10,980	11,128	11,225	11,339	12,210	11,367	11,321
R-Squared	0.063	0.059	0.059	0.060	0.058	0.060	0.058	0.059

Notes: Standard errors clustered by home country. Specifications are conditional on the immigrant mother being employed in the previous year and having an infant (child under the age of 1) in the household and include the full set of controls and fixed effects.

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table A2.2 – Heterogeneity by Maternal Characteristics

	(1)	(2)
Panel 1: Split by Marital Status	Married	Not Married
Home Country Paid Leave	0.00115*** (0.000201)	0.00103** (0.000415)
Observations	8,942	2,283
R-Squared	0.072	0.166
	(1)	(2)
Panel 2: Split by Education	High School Degree or Less	Some College or More
Home Country Paid Leave	0.00101*** (0.000277)	0.00133*** (0.000316)
Observations	6,169	5,056
R-Squared	0.096	0.083

Notes: Standard errors clustered by home country. All specifications are conditional on the immigrant mother being employed and having an infant (child under the age of 1) in the household, and include survey year fixed effects as well as a full set of controls.

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table A2.3 – Heterogeneity by Child Characteristics

	(1)	(2)	(3)
Panel 1: Birth Order	First Birth	Second Birth	Third or Higher
Home Country Paid Leave	0.000862* (0.000486)	0.00113*** (0.000360)	0.000305 (0.000599)
Observations	4,514	3,660	3,051
R-squared	0.109	0.171	0.136
Panel 2: Child Gender	Girl	Boy	
Home Country Paid Leave	0.00129** (0.000580)	0.000679* (0.000364)	
Observations	5,724	5,501	
R-squared	0.097	0.087	

Notes: Standard errors clustered by home country. All specifications are conditional on the immigrant mother being employed and having an infant (child under the age of 1) in the household, and include survey year fixed effects as well as a full set of controls.

*** p<0.01, ** p<0.05, * p<0.1

Chapter 3: Do Cultural Norms Influence Childcare Decisions?

3.1 Introduction

A large body of research documents the benefits of early care and education (ECE) programs in the United States. These programs are the most beneficial to children from disadvantaged backgrounds, whose participation in ECE programs has been linked to increases in wages and educational attainment and reductions in crime participation later in life (Almond and Currie 2011; Heckman et al. 2007). Additionally, some of these early life interventions, such as the Perry Preschool Program or Head Start, have been shown to improve the effectiveness of later life interventions (Heckman 2006; Johnson and Jackson 2017).²⁰

Although there are many benefits to attending ECE programs, many families are not taking advantage of these services, and there are disparities in attendance rates by parental educational attainment or racial and ethnic groups. For example, in 2016, 42 percent of white children between the ages of 3 and 5 were enrolled in preschool, compared to 35 percent of black children and 34 percent of Hispanic children (Child Trends Databank, 2019). There are many potential explanations for this, including lack of access to quality programs and high costs, but another potential factor is related to cultural factors. Some families, for example, may believe that it is the responsibility of the mother or grandmother to care for children regardless of whether high quality-reasonably priced ECE centers are available. Could one of the potential factors influencing ECE participation be cultural norms? This paper explores the role of cultural norms in early childcare decision by studying childcare choices of immigrants in the US.

To empirically estimate the impact of culture, I build upon the epidemiological approach, pioneered by Fernandez and Fogli (2009), which identifies the role of culture by looking at the impact of home country variables on decisions of immigrants or their children. Specifically, I examine the impact of the amount of public spending on services for families (as a percentage of GDP) in the immigrant's home country on ECE

²⁰ The importance of quality ECE programs has even become a talking point in the upcoming US presidential election, with Elizabeth Warren, a presidential candidate, recently introduced her *Universal Child Care and Early Learning Act*, which aims to provide access to high-quality, affordable childcare to families.

program participation of immigrants in the US. Not only does this measure vary over across countries, but it also varies within country, and this allows me to explore how changes in home country resources devoted to publicly-provided childcare centers can change norms about ECE progress.

When public expenditures on services for families are increased in the home country, the additional funding may increase access of care services or provide more subsidies to reduce the cost of care services. If access increases or costs decrease, this can increase the number of families using childcare services – a direct effect of the spending increase. These spending changes can also affect childcare decisions through indirect effects on norms. As more families use these services, perceptions of what it means to be a “good parent” may change as well. When quality childcare services are not readily available, then the use of childcare services in general may be associated with being a “bad parent” regardless of whether the specific childcare center used is of high quality. In contrast, when quality childcare services are readily available to a large portion of the population, the stigma is reduced. While immigrants in the US are not influenced by the direct effects of the changes in public funding, their views about what it means to be a “good parent” can be influenced by the funding increases.

Once they migrate to the US, immigrants are no longer subject to the policies or eligible for the services in their home countries, but they may carry with them the norms and beliefs from their home countries associated with these services. For example, in 2011 Canadians spent 0.2 percent of GDP on childcare services and Belgians spent 1.1 percent. We might expect immigrants from Belgium to have more favorable attitudes toward childcare than immigrants from Canada. Moreover, if they continue communicating with family and friends in the home country, then their norms, beliefs, and attitudes about parenting may evolve along with the norms, beliefs, and attitudes in the home country. For example, Iceland drastically increased their spending on family services during this period, with 1.3 percent of GDP spent on services in 2001 and 2.4 percent spent in 2013. Therefore, Icelandic migrants’ attitudes regarding formal childcare in 2001 may differ from migrants’ attitudes in 2013 because family members back home may have changed their beliefs about public childcare due to increases in these expenditures.

This study contributes to the growing literature that seeks to determine how culture influences various outcomes by studying the behavior of immigrants and their children. Using this epidemiological approach, researchers have found that norms influence female labor force participation rates (Fernandez and Fogli 2009), fertility rates (Fernandez and Fogli 2009), divorce decisions (Furtado et al. 2013), living arrangements (Giuliano, 2007), participation in the stock market (Osili and Paulson 2008), and the decision to take out a large mortgage (Rodrigues-Planes 2018), among other things. This is the first study to examine how cultural norms influences childcare utilization. Additionally, this is the second study to use variation both across time and within country. Furtado and Trajkovski (2019) use a similar strategy to assess the impact of norms regarding family leave on the decision to take parental leave in the US, and how changes in home country paid family leave policy change norms regarding parental leave.

This study also contributes to the literature exploring determinants of childcare usage, specifically for immigrants. Karoly and Gonzalez (2011) find that family income, parental education, marital status, and Hispanic ethnic origin can explain a large portion of the gap in ECE participation between native and immigrant children, but there is still a portion of the gap that remains unexplained. While several papers (Miller et al., 2014; Miller et al., 2013; and Johnson et al., 2017; Boll and Lagemman, 2018) explore how immigrant specific characteristics affect childcare usage, they only use country of origin or migration background to measure culture. Measuring cultural norms using specific home country variables is preferred because it can determine how attitudes and preferences specifically associated with childcare influence ECE participation, rather than more general differences between cultural groups.

The primary data source for this analysis is the 2001-2013 waves of the October Consumer Population Survey (CPS), which contains an educational supplement with detailed information on each household member's educational history. My sample is limited to foreign born women who have at least one child under the age of 5 in the household. Information on the amount of spending on family services in the home country is available from 2001-2013 for 34 countries through the OECD Family Database. These country level data are merged into the individual level CPS data by country of origin and survey year.

Using an epidemiological approach, I find that immigrants from countries that provide more spending on family services are more likely to use formal childcare services in the US. When comparing across immigrant groups, a one percentage point increase in home country public expenditures on family services is associated with an increase in the likelihood of using formal preschool services in the US by 7 percentage points. Models holding constant country of origin suggest that a one percentage point increase in these home country expenditures increases the likelihood of sending children to preschool in the US by 28 percentage points. This result suggests changes in these expenditures can change norms regarding childcare. These results are robust to alternate samples where I drop the largest group of immigrants. Moreover, these norms appear to have a larger impact on childcare decisions for immigrants coming from countries with lower than average spending on family services.

The chapter is organized as follows. First, I provide a review of the relevant literature, focusing on papers examining the determinants of childcare usage. Next I describe the data, followed by a discussion of the empirical strategy. Results are presented in the next section, including robustness checks, placebo regressions, and tests for heterogeneity. The last section concludes.

3.2 Literature Review

The closest related literature to this analysis is that which examines the factors that influence the decision to use early care and education services. Many studies have explored how cost, quality, and quantity of nearby childcare centers affect the likelihood of sending children to formal childcare. Marshall et al. (2013) use survey data from Massachusetts to gain insight into the impact of state childcare subsidies on access to quality childcare services for low income families. They find families receiving subsidies have greater access to care services, more affordable care, and higher quality care. Those who do not receive subsidies are at a disadvantage – they have the greatest difficulty paying for care, the least access to services, and poorest quality care.

Blau and Hagy (1998) take a more empirical approach to understanding how cost and quality of care are related to the utilization of ECE services by estimating the demand function for quality of childcare

services. They find the demand for more formal types of care is more price sensitive than demand for other types of nonparental care, with a decrease in hourly price in care centers leading to an increase in the use of center-based care. Additionally, they find parents view quantity and quality of care as substitutes.

A few studies explore how the cost of childcare affects attendance by exploiting changes in childcare subsidies. Baker et al. (2008) examine the effects of a major reform in Quebec which introduced universal kindergarten for 5-year-old children and public childcare for \$5 a day for children age 4 and younger. Results show that there was an increase in use of universal care, and a reduction in the use of informal care due to the increased usage of subsidized care. Gathmann and Sass (2018) find a corresponding effect for a reform in East Germany, which started providing families with generous subsidies if they did not send their 2-year-old children to public day care.²¹ Not only did this home care subsidy reduce attendance in formal day care, but it also reduced the number of children in informal care settings, and instead children started being cared for exclusively at home.

While cost, quantity, and quality tend to be the main focus in the literature, several papers examine alternate factors that influence childcare attendance. Han (2004) explores how standard and nonstandard working hours impacts childcare usage and finds that mothers who work more nonstandard hours rely heavily on parental care (either from fathers or themselves) rather than use center-based care. Moreover, results show that mothers who switch from standard to nonstandard work hours use more parental care, while mothers switching from nonstandard to standard work hours use more center-based care. Unfortunately, the author is unable to determine why mothers switch their working hours and if this switch is related to childcare decisions, but he does note that as children age, center-based care becomes the most frequent type of care parents use.

Several papers have explored determinants of ECE participation for immigrant families since there are large gaps in attendance between native and immigrant children. Karoly and Gonzalez (2011) find the

²¹ This policy was introduced to expand access to childcare subsidies. The old subsidy policy was means tested, so many higher income families received a small subsidy or no subsidy at all. Under this new policy, all families are eligible for the subsidy, but the amount received varies by the family's childcare selection (parental care versus public day care).

lower center-based care usage for immigrants is largely driven by four factors – immigrant families tend to have higher poverty rates, low parental education, higher rates of marriage, and are of Hispanic ethnic origin. Each of these characteristics are associated with lower ECE participation. While these factors explain a large portion of the native-immigrant gap in formal childcare attendance, there is still a portion of the gap that remains unexplained. Miller et al. (2014) further explore factors that influence immigrant childcare decisions and find region of origin, English language proficiency, and the availability of non-English care options play a role in ECE participation. Specifically, immigrants with greater English proficiency and those living in communities with more non-English care providers are more likely to use center-based care.²² Miller (2016) finds a similar pattern when examining dual language learner households.

Only one paper explores how culture influences childcare decisions. Boll and Lagemann (2018) examine childcare usage of migrant mothers in Germany and use migrant background to capture the effect of culture. Results show migrants from South Eastern Europe are less likely to utilize formal state subsidized care in Germany, while more recent arrivers were more likely to use these services. My paper seeks to examine the effect of cultural norms on the childcare decisions using immigrants in the United States and a different empirical strategy.

Rather than estimate culture using region of origin, I employ an epidemiological approach first used by Fernandez and Fogli (2009). Rather than measure culture using country of origin indicator variables, the epidemiological approach measures culture using aggregate home country level variables. For example, Fernandez and Fogli (2009) use home country female labor force participation (LFP) rates to determine the impact of culture on women's work decisions. This aggregate female LFP measure captures the distribution of preferences and beliefs, including how women perceive their role in the household, positive or negative attitudes towards children having a working mother, or beliefs about how others will treat her depending on her work decision, among other things. This measure of culture has the main advantage of being able to compare immigrant groups to one another based on specific attitudes or norms.

²² Miller et al. (2014), Miller et al (2013) and Johnson et al (2017) find these immigrant specific characteristics are important for children age 0-2, children age 4, and low income 4 year old children respectively.

When we simply control for country of origin, we can distinguish between differences across immigrant groups, but we are unable to distinguish what specific aspects make these groups differ. In addition to using this stronger measure of cultural norms, I contribute to this literature by exploiting changes over time within country by including country of origin fixed effects.

3.3 Data

The data for this study comes from the 2001-2013 waves of the October CPS. The October CPS includes an educational supplement which has detailed information on each household member's educational attainment, including what grade they were enrolled in last fall and whether they attend public or private school. I use this supplement to create my main dependent variable – if there are any children in the household attending nursery school (either full day or half day programs).²³ This variable is an indicator variable equal to one if a child is enrolled in some form of formal pre-k program and zero otherwise. Children who are not enrolled in formal care may be in parental care or another informal care setting (such as care from a nanny or relative), but I am unable to distinguish between these in my data.

The independent variable of interest in this study is the amount of spending on services or in-kind benefits to families as a percentage of GDP in the country of origin. The data is available through the OECD Family Database. Examples of spending on family services include financing or subsidizing childcare and early care and education facilities, public childcare support through payments to parents, and public spending on family services (including center-based facilities and home help services for families in need). This data is available for 34 countries from 2001-2013.

The sample used in this study is limited to all foreign born mothers in a single family household between the ages of 16 and 65 with at least one child under the age of 5. Table 1 presents summary statistics split by countries that offer above and below mean public spending on services for families. For both groups, about 22 percent of mothers have a child enrolled in prekindergarten or nursery school in the US.

²³ Nursery school is described as a prekindergarten or pre-k program in the CPS.

There are some difference in maternal characteristics across these two groups. Mothers migrating from countries that provide below average funding for family services are more likely to be married, have a college degree or more years of education, are employed, and have a higher family income than mothers migrating from countries that devote more funding for family services.

Table 2 presents the means for home country spending on family services and ECE participation rates in the US for each of the countries in the sample. There is great variation in both spending and childcare attendance. For example, Austria only devotes 0.44 percent of GDP on average to spending on family services and 78 percent of children with Austrian mothers are enrolled in childcare, whereas Sweden has one of the highest spending in the sample (1.74 percent of GDP) but only 22 percent of these children are enrolled in pre-k in the US. It is also important to note that a large portion of the sample is comprised of Mexican immigrants, and only 20 percent of these children are enrolled in ECE services in my sample.

3.4 Empirical Strategy

To empirically estimate the effect of norms on childcare decisions, I consider the impact of home country spending on services for families. More public spending on family resources can signal more accepting norms about ECE programs for two reasons. First, it may be the case that countries with strong norms or preferences for ECE programs may devote more resources to these services. On the other hand, it may also be the case that countries that devote more resources to family services see norms change over time to favor these services more. Regardless of the direction of the relationship between family services expenditures and norms, it is important to note there is a connection between the two. While public spending on childcare in a country impacts childcare decisions of the people living in that country mostly by making quality childcare affordable, this spending can only influence immigrants' decisions through norms. Given that they are not living in their home country, they cannot take advantage of the better childcare options. However, if their friends and family members use these options, then their perceived norms concerning childcare will adjust.

To determine if norms regarding childcare influence ECE participation, I estimate the following equation:

$$Y_{istm} = \beta_0 + \beta_1 S_{tm} + \beta_2 X_{istm} + \gamma_{st} + \varepsilon_{istm}$$

for each individual i in state s and year t and migrated to the US from country m . The dependent variable, y , is a dummy variable equal to one if a child in the household is in nursery school (either full day or half day). The main dependent variable of interest is S , which is the amount of spending on services and in-kind benefits to families as a percentage of GDP. If norms associated with childcare decisions are important and immigrants carry them over to the US which they migrate, the coefficient will be positive. The vector X contains individual demographic controls for the parents. This includes age, gender, race/ethnicity, educational attainment, marital status, family income, year of migration to the US, and an indicator variable for if she is employed.

In the US, individual states offer different programs. For example, Oklahoma and Georgia were the first states to offer universal childcare and since then other states have followed suit. Other states offer “targeted” childcare programs to families that fall below a certain income threshold. Given that there is variation across states and over time regarding childcare programs, readers may be concerned that if immigrants from countries with more generous childcare norms (or those who come from countries where sending your child to daycare is the norm as opposed to those who prefer mothers to stay at home with their children until school age) happen to live in states with universal childcare programs/more generous childcare benefits then the results may be biased. To address this concern, I include state by year fixed effects in the model.

One of the potential issues with this estimating equation is that I may just be picking up a spurious correlation between culture and childcare decisions and that these norms are not truly influential in childcare decisions. For example, even among immigrants living in the same state in the same year, those from high spending countries may have better access to inexpensive childcare. If this is the case, then it is not about immigrants’ exposure to more generous funding for family services influencing norms, but rather about

access to more affordable childcare. In order to determine if norms about childcare influence immigrant childcare decisions, I add home country fixed effects in the estimating equation:

$$Y_{istm} = \beta_0 + \beta_1 S_{tm} + \beta_2 X_{istm} + \gamma_{st} + \delta_m + \varepsilon_{istm}$$

These fixed effects control for any unobservable, time invariant characteristic of the immigrants, which may be correlated with home country public spending on family services and ECE participation in the US. With the inclusion of these fixed effects, the identifying variation comes from changes in public spending on family services in the home country over. For example, Germany has had childcare shortages in the past, but is currently making strides to expand access to childcare services and thus the country has increased its spending on family services during this period. In 2001, Germany was spending 0.7 percent of GDP on family services, but this increased to 1.1 percent as of 2013. A German mother observed in my data in 2013 may be more likely to use formal childcare services in the US because her friends and family back home may be happier with the services provided or may use more childcare, compared to a German mother observed in my data in 2001.

A potential concern with using changes in home country expenditures is that if these expenditures are only increasing over time, this may just be capturing an overall trend and not be an ideal source of variation. Figure 1 plots the variation in home country spending on services for families over time for Greece, Hungary, Spain, and Denmark.²⁴ The graph shows that there are both increases and decreases in the amount of public expenditures for family services within country over time, helping to alleviate the concern that the variation in spending is only due to increased funding.

3.5 Results

3.5.1 Baseline Results

Table 3 presents results for the baseline model. All specifications include the full set of controls and gradually add fixed effects. The coefficient estimate for home country spending on family services

²⁴ These countries were selected because they represent the 25th, 50th, 75th, and 99th percentiles for average public expenditures on family services in the sample.

remains fairly stable with the inclusion of state, year, and lastly state by year fixed effects. Results in column 4 indicate that a one percent increase in public expenditures on family services increases the likelihood of using ECE services in the US by 7 percentage points. This can lead to some large differences in formal childcare utilization among immigrant groups. For example, when we compare immigrants from countries that provide the lowest and highest levels of expenditures of family services, there is a 13.9 percentage point difference in the likelihood of sending a child to preschool in the US. These results indicate norms do play a role in childcare decisions.

The last column of Table 3 adds country of origin fixed effects to the model, which changes both the magnitude of the coefficient estimate. These results suggest that a one percent increase in spending on family services in the country of origin increases the likelihood of sending your child to an early care and education (ECE) program in the US by 28 percentage points.²⁵ The country of origin fixed effects control for unobservable characteristics that remain constant over time, such as traditional gender roles or preferences for parental care over center based care, which may be negatively correlated with ECE participation. Failure to control for these time invariant characteristics may have resulted in earlier results to be biased downward.

Results also show that several maternal characteristics affect the decision to use ECE services in the US. Mothers with a college degree or higher years of education, white mothers, and employed mothers are more likely to send their children to childcare in the US. On the other hand, mothers who are married or have lower levels of education (compared to their more educated counterparts) are less like to use childcare services in the US.

Table 4 checks the robustness of the results to alternate samples. The first column drops immigrants from Mexico since they are the largest group in the sample and may be driving the results. Results show

²⁵ Although the magnitude of this estimate seems fairly large, it is important to note that it is rare that a country increases their funding for family services by one percent of their GDP. (In fact, none of the countries in the sample increase public spending on those services by one percent of GDP during this time.) It is much more common that when countries do allocate more funding to services for families, it only increases by 0.1 percent of GDP. Therefore, when home country spending on family services increases by 0.1 percent of GDP, the likelihood of using ECE services in the US increase by 2.8 percentage points.

the effect of spending on family services is slightly larger in magnitude when estimated without Mexico in the sample, but it is no longer statistically significant. This may be due to loss of power with the larger reduction in sample size after eliminating Mexican immigrants.²⁶ The second column removes Canadian and Turkish immigrants from the samples, since these two countries provide the least funding for family services in the sample. The third column removes immigrants from countries that provide the highest levels of funding for family services in the sample – Denmark, Finland, Sweden, and Norway. Results from dropping these migrants are very similar to those from the baseline model, indicating that the results are not driven by a particular country.

The second panel of Table 4 explores the differential effects of childcare norms by splitting the sample based on mean spending on services for families in the home country. For example, immigrants from countries that already devote a relatively large amount of funding for family services may not only have greater access to public childcare centers, but these may also be higher quality centers. On the other hand, for immigrants from countries that provide relatively small amounts of funding for family services, any increase in expenditures may most likely be used to expand access of services to previously ineligible families, rather than increase quality of services provided. I attempt to distinguish whether norms about childcare centers change more in response to the existence of childcare centers at all or by improvements to quality of childcare centers (or widespread availability). Results show that for immigrants from counties that devote fewer resources to family services, changes in public expenditures have a bigger influence on changing norms, potentially indicating that basic access to services in their home countries may be more important for determining ECE participation in the US.

3.5.2 Placebo Regressions

Next, I turn to examine whether home country public spending on services for families is specifically measuring norms regarding childcare, or if changes in spending for family services happens to

²⁶ The state by year fixed effects make large sample sizes especially important. When I replace the state by year fixed effects with state and year fixed effects separately, then the results for spending on family services is positive and significant, even when dropping Mexico from the sample.

be correlated with other family norms of immigrants. For example, if it is the case that immigrants from countries that care more about the well-being of children and families are more likely to take advantage of ECE programs, then if I were to measure the impact of culture using a different home country characteristic that captures attitudes towards family and child well-being, this measure would also be important in influencing childcare decisions in the US. On the other hand, if it really is norms regarding childcare, then these alternate home country characteristics should not play a role in ECE participation in the US among immigrants.

In order to explore whether norms regarding childcare or more general family norms are influencing childcare decisions, I estimate the baseline model using public funding for cash benefits to families (as a percentage of GDP) and the duration of paid family leave in the home country as alternate measures of cultural norms.²⁷ While these alternate home country characteristics may be associated with more family-centric norms or more for the well-being of children and families, they should not be associated with the decision to enroll children in ECE programs. Examples of cash benefits to families include cash allowances, public income support during periods of paid parental leave, and for some countries, income support for single parent families. Duration of paid leave in the home country is the number of weeks of paid leave to new mothers, including maternity leave and parental leave.

Table 5 presents the results using these alternate home country measures. Column 1 reproduces the baseline results for the sample used in the rest of the table. The sample size is slightly smaller due to missing information on duration of paid family leave.²⁸ Results for cash benefits and paid leave duration are negative and insignificant, indicating they have no impact on childcare decisions of immigrants in the US.

3.5.3 Heterogeneity

It has already been established in the literature that certain parental observable characteristics are correlated with lower ECE participation – married, low educated, and low-income immigrant parents are

²⁷ Data on spending on cash services is available Our World in Data <https://ourworldindata.org/>. Paid leave duration is available from the OECD Gender Data Portal.

²⁸ Home country paid leave is unavailable for Chile, Estonia, and Latvia during this time, and thus the sample size is slightly smaller.

less likely to enroll their children in center-based childcare (Brandon, 2004; Karoly and Gonzalez, 2011). On the other hand, targeted programs, such as the Perry Preschool Program and Head Start, are aimed at children from economically disadvantaged backgrounds, and thus there are higher enrollments of low income and African American children in these programs. Given that there are differences in childcare attendance rates for these groups, I examine if cultural norms regarding childcare have stronger effects from some groups more than others.

The results in Table 6 present the coefficient estimates using an interaction model to explore the differential impacts of norms by observable characteristics without sacrificing sample size. Results indicate childcare norms do not strongly differ across marital status, family income, or employment status. However, norms do play a stronger role in influencing childcare participation for lower income families.

3.5.4 Alternate Outcomes

A large portion of the literature on determinants of childcare usage is motivated by the relationship between childcare attendance and maternal employment. With increasing female labor force participation over time, the number of children in nonparental care is increasing. I now turn to examine how home country norms associated with childcare influence maternal labor force decisions in the US, specifically how these norms impact employment and working hours decisions of migrant mothers in the US. I would expect that immigrants from countries that devote more funding for family services, which reflect stronger norms towards childcare usage, may be more attached to the labor force, meaning they are more likely to be employed or work full time.

Table 7 explores the effect of norms on labor market outcomes for immigrant mothers. The first panel shows that mothers from countries with more resources devoted to family services are more likely to be employed in the US. A 0.1 percent increase in spending on family services in the home country increases the probability of being employed in the US by 1.7 percentage points. In addition to the employment decision, I also investigate if childcare norms influence the decision to work full or part time and whether it impacts the number of hours worked per week. Results show immigrants from countries with more

funding for family services are more likely to be employed full time and work more hours per week, although the coefficient estimates are not statistically significant.

3.6 Conclusion

While there are many short and long run benefits of sending children to early care and education programs, there still exist disparities in attendance rates across different groups in society. This paper explores the role of cultural norms in influencing childcare decisions, and more specifically, how changes in the availability or spending on services for families can change norms associated with formal childcare usage.

My results indicate that home country norms associated with family services are important for explaining the ECE participation of children of immigrants in the US. A 0.1 percent increase in spending for family services in the home country increases the likelihood that a child is attending formal childcare in the US by 2.8 percentage points. This result is driven specifically by norms associated with family services or childcare. Other home country cultural norms associated with more general family policies such as family leave, do not appear to affect childcare decisions.

It also appears that norms regarding childcare may also impact employment outcomes for migrant mothers in the US. Mothers from countries with more funding for family services are also more likely to be employed in the US. These norms may also influence working hours or part time/full time employment status, although the evidence is inconclusive.

These results have important implications for both the culture and determinants of childcare literature. My study finds that changes in the availability of public services can change cultural norms. It also shows that cultural norms play a role in childcare decisions, which may be able to explain a small fraction in why there are such difference in ECE participation among racial and ethnic groups.

Table 3.1 – Summary Statistics

Variable Name	Low Spending		High Spending	
	Mean	SD	Mean	SD
Nursery School	0.229	0.420	0.217	0.412
% GDP on services or in-kind	0.410	0.135	0.710	0.162
Married	0.823	0.390	0.777	0.416
Age	32.3	6.56	31.1	6.54
Less than High School	0.304	0.460	0.487	0.500
High School Degree	0.229	0.421	0.278	0.448
Some College	0.164	0.370	0.124	0.330
College or More	0.303	0.460	0.111	0.314
White	0.286	0.452	0.118	0.322
Black	0.017	0.130	0.019	0.138
Asian	0.117	0.322	0.011	0.103
Hispanic	0.543	0.498	0.863	0.344
Family Income	670	195	623	193
Employed	0.423	0.494	0.389	0.488
Number of Children	2.19	1.16	2.39	1.18
Immigration Year	1994	9.90	1995	8.97
Observations	1,558		5,188	

Notes: Summary statistics are presented for foreign born mothers in single family households age 16 to 65 with at least one child under the age of 5. Statistics are weighted using final basic weights. Data on spending on family services as a percentage of GDP is available for 33 countries in the OECD Family Database from 2001-2013. All other summary statistics were calculated using the 2001-2013 waves of the October CPS. Countries in the low spending group are those that spend 0.64 percent of GDP or less on services for families, while countries in the high spending group allocate more than 0.64 percent of GDP for spending on family services.

Table 3.2 – Summary Statistic by Country of Origin

Country	Public Spending on Services for Families	ECE Attendance in the US	Number of Observations
Denmark	2.13	0.33	12
Sweden	1.75	0.25	8
Norway	1.64	0.75	8
Finland	1.57	0.22	9
France	1.38	0.36	44
United Kingdom,	1.27	0.42	26
Hungary	1.14	0.21	19
England	1.09	0.40	126
Scotland	1.01	0.44	18
New Zealand	1.00	0.50	8
Belgium	0.97	0.29	14
Cyprus	0.95	0.00	2
Netherlands	0.88	0.42	19
Germany	0.81	0.32	270
Australia	0.73	0.30	27
Spain	0.72	0.30	20
Mexico	0.65	0.19	5163
Italy	0.61	0.32	50
Chile	0.59	0.15	27
Ireland	0.57	0.55	22
Czech Republic	0.53	0.14	14
Portugal	0.51	0.26	39
Austria	0.50	0.50	2
Poland	0.45	0.29	119
Japan	0.44	0.26	177
Slovakia	0.43	0.20	15
Greece	0.40	0.46	13
Estonia	0.40	1.00	2
Switzerland	0.31	0.53	15
South Korea	0.31	0.27	144
Latvia	0.21	0.20	10
Canada	0.20	0.29	277
Turkey	0.14	0.15	26
Total	0.64	0.22	6745

Notes: Summary statistics are presented for foreign born mothers in single family households age 16 to 65 with at least one child under the age of 5. Statistics are weighted using final basic weights. Data on spending on family services as a percentage of GDP is available for 33 countries in the OECD Family Database from 2001-2013.

Table 3.3 – Baseline Model

	(1)	(2)	(3)	(4)	(5)
GDP Spending on Services for Families	0.0858*** (0.020)	0.0797*** (0.021)	0.0879*** (0.026)	0.0707** (0.028)	0.2815** (0.114)
Married	-0.0153*** (0.005)	-0.0178*** (0.006)	-0.0156*** (0.006)	-0.0176** (0.007)	-0.0173** (0.007)
High School Degree	0.0153** (0.007)	0.0156** (0.007)	0.0150* (0.007)	0.0180*** (0.006)	0.0169*** (0.005)
Some College	0.0624*** (0.007)	0.0629*** (0.007)	0.0620*** (0.007)	0.0653*** (0.007)	0.0644*** (0.008)
College or More	0.1043*** (0.023)	0.1045*** (0.023)	0.1030*** (0.023)	0.1092*** (0.026)	0.1031*** (0.029)
White	0.1224*** (0.032)	0.1206*** (0.037)	0.1160*** (0.035)	0.1373*** (0.039)	0.1673*** (0.038)
Black	0.0913** (0.034)	0.0842** (0.035)	0.0814** (0.034)	0.0841*** (0.028)	0.0969*** (0.026)
Hispanic	0.0401 (0.028)	0.0358 (0.031)	0.0314 (0.031)	0.0637* (0.033)	0.1551*** (0.041)
Asian	0.1146*** (0.037)	0.1074*** (0.036)	0.1032*** (0.033)	0.1318*** (0.036)	0.1213*** (0.037)
Family Income	-0.0000** (0.000)	-0.0000** (0.000)	-0.0000*** (0.000)	-0.0000 (0.000)	-0.0000 (0.000)
Employed	0.0144** (0.006)	0.0176** (0.007)	0.0175** (0.007)	0.0202*** (0.007)	0.0203*** (0.007)
Age	0.0021* (0.001)	0.0016 (0.001)	0.0014 (0.001)	0.0013 (0.001)	0.0012 (0.001)
Migration Year	-0.0007 (0.001)	-0.0007 (0.001)	-0.0009 (0.001)	-0.0007 (0.001)	-0.0004 (0.000)
Number of Children	0.0352*** (0.007)	0.0368*** (0.007)	0.0364*** (0.007)	0.0366*** (0.006)	0.0363*** (0.005)
State	N	Y	Y	N	N
Year	N	N	Y	N	N
State by Year	N	N	N	Y	Y
Country of Origin	N	N	N	N	Y
Observations	6,744	6,744	6,744	6,744	6,744
R-squared	0.034	0.043	0.044	0.106	0.114

Notes: Standard errors clustered by home country and results are weighted using final weights. The sample is limited to foreign born mothers in single family households age 16 to 65 with at least one child under the age of 5. Control variables include age, race/ethnicity, educational attainment, marital status, family income, number of children in the household, year of migration to the US, and an indicator variable for employed.

*** p<0.01, ** p<0.05, * p<0.1

Table 3.4 – Robustness

Panel 1			
	(1) Drop Mexico	(2) Drop Canada & Turkey	(3) Drop Nordic
Spending on Services	0.3217 (0.209)	0.2840** (0.125)	0.3078** (0.116)
Mean	0.31	0.22	0.22
Observations	1,581	6,441	6,707
R-Squared	0.361	0.114	0.113
Panel 2			
	(1) High Spending	(2) Low Spending	
Spending on Services	0.2467 (0.232)	0.4972** (0.228)	
Mean	0.22	0.21	
Observations	3,518	3,226	
R-Squared	0.165	0.167	

Notes: Standard errors clustered by home country and results are weighted using final weights. All models include state by year and country of origin fixed effects, as well as the full set of control variables. Countries in the low spending group are those that spend 0.64 percent of GDP or less on services for families, while countries in the high spending group allocate more than 0.64 percent of GDP for spending on family services.

*** p<0.01, ** p<0.05, * p<0.1

Table 3.5 – Placebo Regressions

	(1)	(2)	(3)
Spending on Services	0.2724** (0.118)		
Cash Benefits		-0.0007 (0.108)	
Duration of Paid Leave			-0.0015 (0.001)
Observations	6,701	6,701	6,701
R-Squared	0.114	0.113	0.113

Notes: Standard errors clustered by home country and results are weighted using final weights. All models include state by year and country of origin fixed effects, as well as the full set of control variables. Data on spending on family services and cash benefits as a percent of GDP is available through the OECD Family Database. The data for all other measures is available through Our World in Data (<https://ourworldindata.org/>).

*** p<0.01, ** p<0.05, * p<0.1

Table 3.6 – Heterogeneity

	(1)	(2)	(3)	(4)
Spending on Services for Families	0.3613** (0.133)	0.3043** (0.130)	0.3796** (0.162)	0.2863** (0.126)
Married*Spending	0.0451 (0.072)			
High Edu*Spending		-0.0280 (0.079)	-0.1954* (0.112)	
High Income*Spending				0.0261 (0.037)
Employed*Spending				
Observations	6,744	6,744	6,744	6,744
R-squared	0.114	0.113	0.103	0.114

Notes: Standard errors clustered by home country and results are weighted using final weights. Low education mothers are those with a high school degree or fewer years of education, while high education mothers have at least some college or higher levels of education. Mean household income for the sample is 720. Countries in the high spending group allocate more than 0.64 percent of GDP for spending on family services.

*** p<0.01, ** p<0.05, * p<0.1

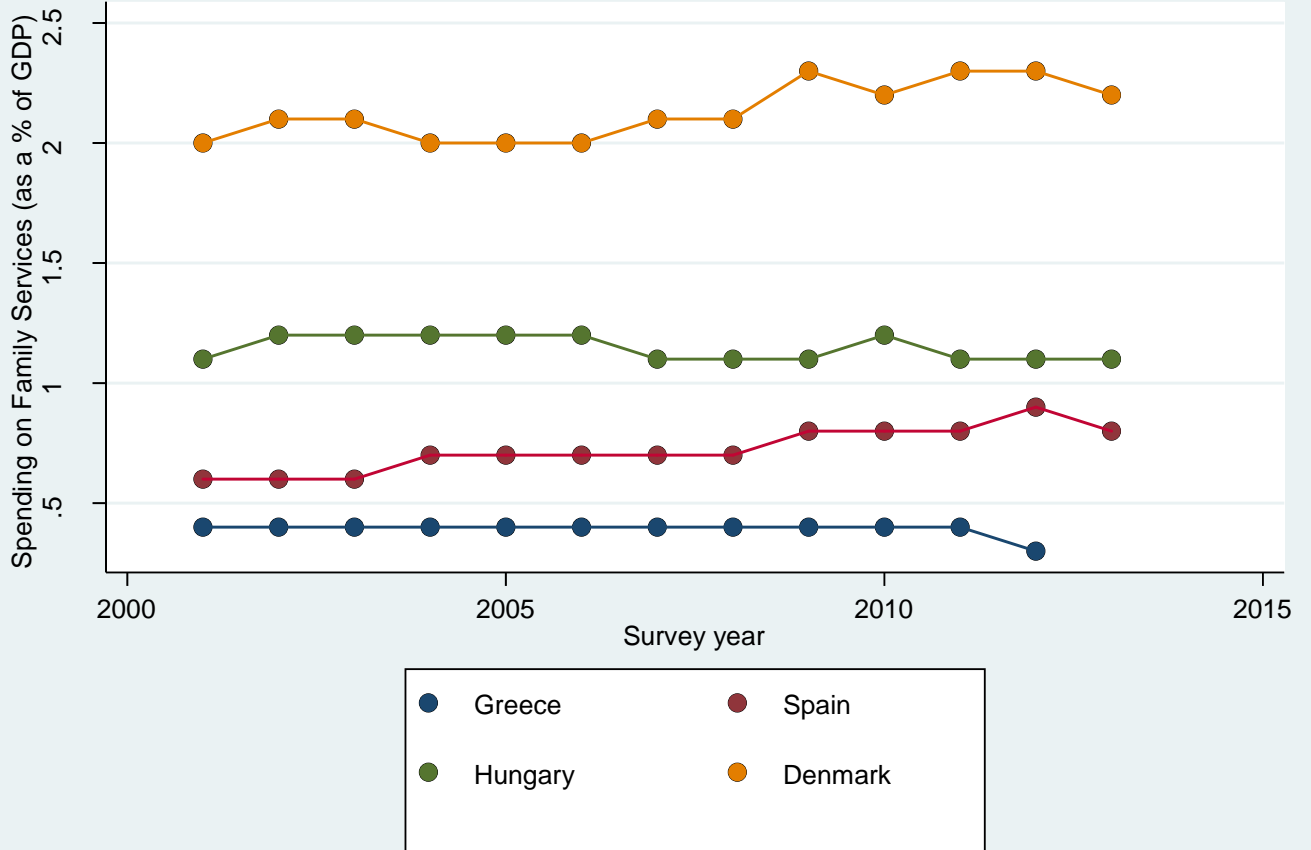
Table 3.7– Alternate Outcomes

Panel A		
Dependent Variable: Employed		
GDP Spending on Services for Families		0.1727** (0.080)
Mean		0.40
Observations		6,744
R-squared		0.180
Panel B		
Dependent Variable: Full Time Employment		
GDP Spending on Services for Families		0.2406 (0.225)
Mean		0.63
Observations		3,038
R-squared		0.212
Panel C		
Dependent Variable: Hours Worked Per Week		
GDP Spending on Services for Families		2.2897 (7.356)
Mean		35.5
Observations		2,541
R-squared		0.235

Notes: Standard errors clustered by home country. All models include state by year and country of origin fixed effects, as well as the full set of control variables. All panels use the same sample of women from the baseline model but change the outcome variable determine if norms regarding childcare affect employment decisions, full time employment, and hours worked per week.

*** p<0.01, ** p<0.05, * p<0.1

Figure 3.1: Variation in Home Country Spending Over Time for Select Countries



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